

RE-STYLING THE '57 FORD

# CAR CRAFT

JANUARY 1957 25c



SECRETS--

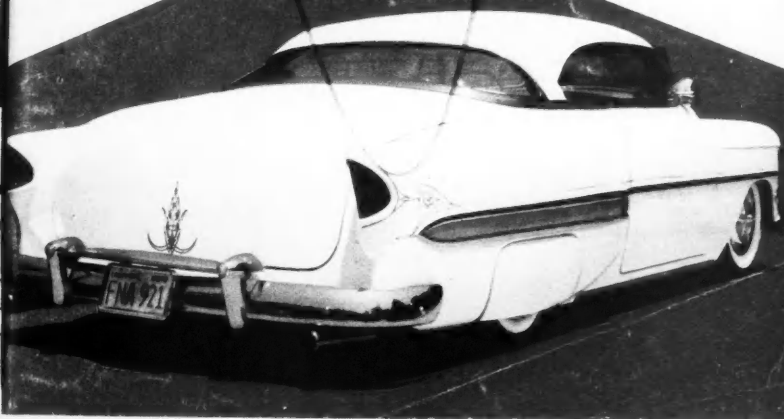
TOP CHOPPING

Valley Custom

PRECISION

VALVE JOB

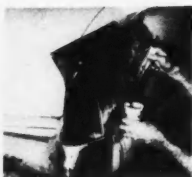
by Don Francisco



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**WAY OUT CUSTOMIZING** or just minimum modification is a snap with TAP Fiberglas and Tapox Resin Kits. An example is this jewel of Johnny Johnson's. Beginning with a 51 Kaiser and using TAPKITS exclusively, he came up with a custom loaded with HTP—"head-turning-power"!



**AIR SCOOP FINS** and hooded headlights were made entirely with TAP "glass". A single sheet of hardened "glass" was used as a base. Final lines and contours were achieved with additional layers of Fiberglas soaked in Tapox Resin. Finished job looks like it had been stamped out in one piece by Detroit!

YES, any amateur carcrafter can repair and restyle auto bodies with professional results with TAPKITS. These kits contain genuine Fiberglas and Tapox resin, guaranteed to bond permanently to any metal. These materials are easy to apply and easy to finish and cost less than one-third cost of leading and welding!

With TAPKITS, you can completely change the lines of your car at home, without expensive tools and equipment. No torch is required. Buy yourself a body file and borrow a disc sander and you're in business as a TAP "glasser"!

Whether it's just a dechroming and frenching job or air scoops and fins, the greenest beginner carcrafter can turn out prize-winning work with TAP's special metal-bonding plastics. No wonder thousands of backyard customizers all over the world are order-

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☐ THE GLASSER'S MANUAL, \$1.00. Complete guide for beginners in repairing and restyling auto bodies with Fiberglas and resin. Over 50 photos, non-technical.

☐ Send complete price list and more information on repairing, restyling and customizing auto bodies with TAPKITS.

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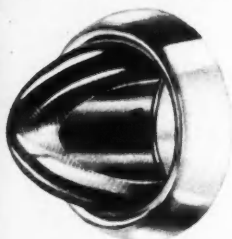


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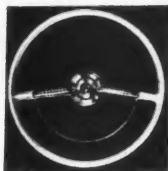
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# CAR CRAFT

The "Custom Car" Magazine

Vol. 4  
Published Monthly  
No. 9

Editorial  
Director

Wally Parks

Photographers

Eric Siskind  
Bob D'Olive  
Al Polgony  
Celia Croft

Editor

Managing Editor  
Technical Editor  
Art Director  
Asst. Art Director  
Production  
Advertising  
Ad Production  
Circulation

Dick Day  
Bob Pendergast  
Ray Brock  
Al Lewis  
Art Smith  
Yvonne Hall  
Tom Medley  
Dick Jones  
Gordon Zahn

Contributors

Bob Hurdon  
Peter Schlotz  
George Baris  
Carl Kohler  
Walt Dittleson  
Holl Emory  
George Curry

Publisher

R. E. Peterson

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## COVER

The beautifully customized '54 Chevrolet found perched on this month's front cover displays the talented work of owner builder — Duane Steck. Duane had the good fortune of using friend Ben Cook's welding shop, for off-hours work. The end result is obvious. For further details check out page 10.

Anasochrome by Bob D'Olive

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# SEASON'S GREETINGS



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Y. Hull



M. Donnell



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W. Parks



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THE  
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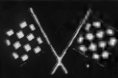
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## LETTERS

### DISTAFF ENTHUSIAST

Dear Sir:

Thanks for the article on upholstering trunk compartments in your September issue. It is just what I had been waiting to see, since I intend to try and do my own upholstery work on my trunk compartment and floor rugs.

My machine is a '55 Ford. It is a little unusual for a girl to have a car like this, so I am quite proud of it. Totaled when it had only 700 miles on it, it was rebuilt by Bowman's Body Shop of Riverside from whom I bought it. Many people said that I was foolish to buy a total, but I had no more trouble with it than I would expect from any car. It is nosed and decked, raked about 3 inches, and has Fenton headers and dual Smitty glass-packed mufflers. The paint job is predominantly an off-white, mixed by adding a little purple to the white. The top, dash, and garnish rails are metallic purple. Bill Bowman is going to pin stripe it, and in the not-too-far-distant future, I plan to add tuck and roll Naugahyde upholstery and a Cadillac mill.

I would like to see more girls become interested in cars and car clubs. I am the secretary and the only girl member of the "Swanz" Car Club of Riverside and recording secretary of an association we call the "Car Clubs of Riverside County". The CCRC is working to show the people of Riverside that all car enthusiasts are not hoodlums with hot rods, so that perhaps we can build a drag strip in Riverside.

You have a terrific magazine. Keep it up.

— Karen Buckowski  
Riverside, Calif.

How 'bout it — any other feminine gender comments? — Ed.

**coming  
NEXT MONTH**

**RESTYLE '55 CHEV  
TAILLIGHTS — IN  
THIRTY MINUTES**

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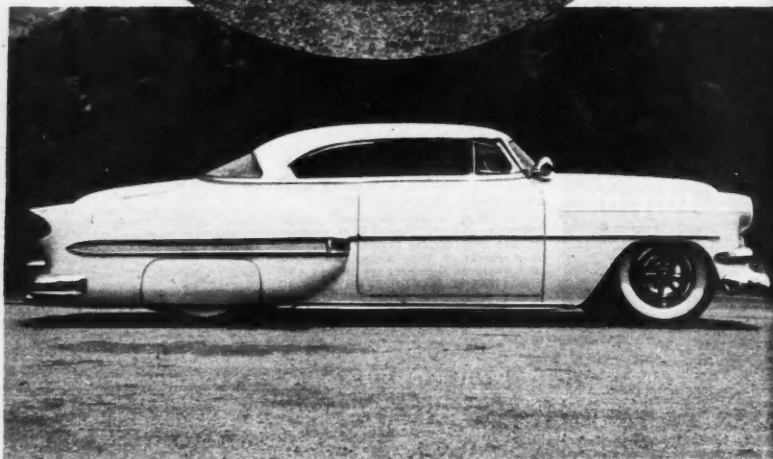
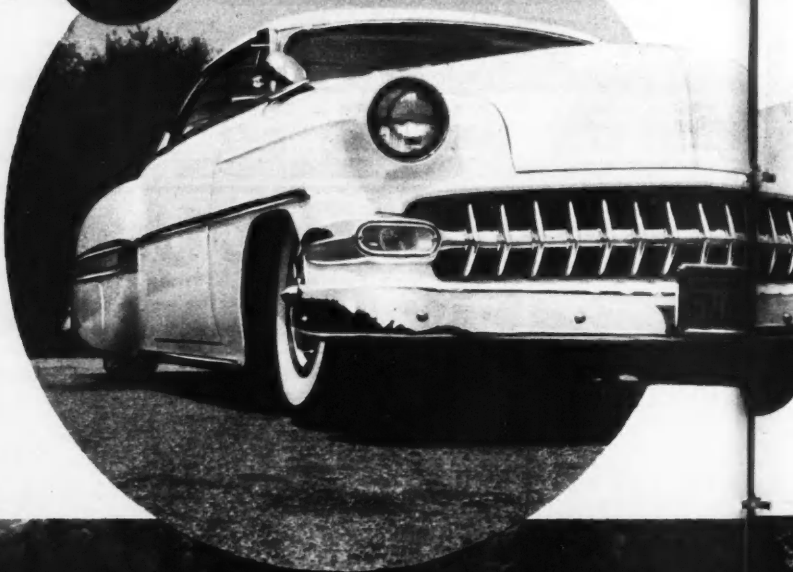
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COVER  
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introducing "1



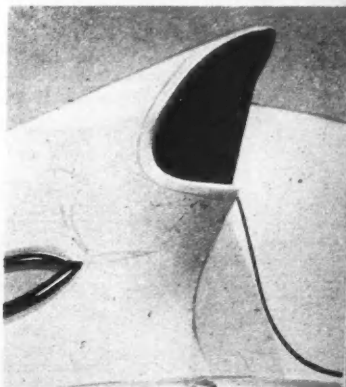
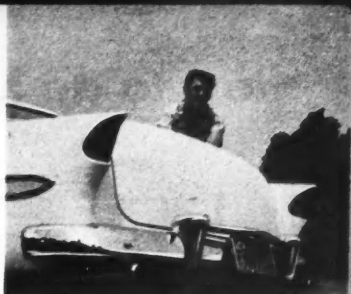
Ten additional '54 Chevy vertical grille bars were adapted to stock grille bar creating unique appearance. Headlight rims from '52 Ford were used to french lights. Top has been chopped 3½ inches; rear window is made from Plexiglass. Suspension system has been altered, dropping body of car another 7 inches, augmenting low silhouette.



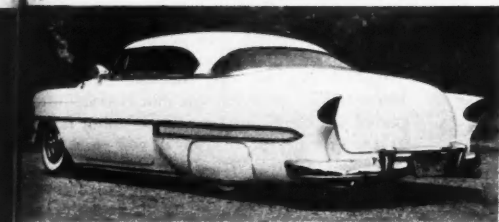
# ng "MOONGLOW"

with a body shop at his disposal,  
Duane Steck tailors his own  
"off hours" radical custom

*Twelve months' spare time, a place to work and a large amount of enthusiasm spells the success behind Duane Steck's immaculately built '54 Chev Bel Air sport coupe. Performing all body work on the car himself, with support from friend Ben Cook, Duane's effort proves that a tyro customizer can produce his own custom car.*



*Beautiful "shark fin" taillights incorporate '56 Chrysler lenses adapted upside down with copper tubing and sheet metal used to create molded extension housings. '56 Chev rear bumper guards feature special back-up lights. Tedious pin striping is work of young Larry Watson.*



Photos by Bob D'Olive

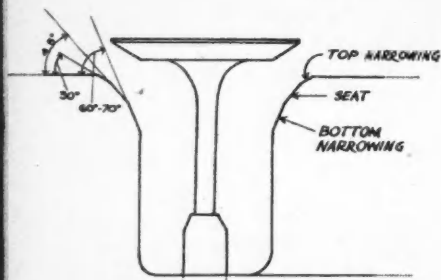
*Del's Trim Shop is credited with flawless two-toned Powder Blue and white upholstery job. Rugs are contrasting dark blue. All exterior trim such as door handles and deck lid goodies have been discarded and are now operated electrically. Side trim remains stock. Hubcaps have added Olds flipper bars.*



# how to do a - PRECISION VALVE JOB

By Don Francisco

Photos by Tom Medley



*Drawing shows how valve seat is narrowed down to the proper width by use of two stones, one of greater and the other of smaller angle than the seat angle. The steeper angle stone not only narrows seat but also opens port a slight amount.*

**ALTHOUGH THEY SAY** nice people don't gamble (except on sure things) I'll risk two-bits cash — tax free — against a pair of worn-out alky jets that the first thing you learned about your car was that it would get out of the chute quicker and be going faster at the end of the quarter if you raised its compression ratio. What? I'm wrong? This I can't believe. All bets will be paid on the 31st of June, from 8:00 a.m. to 6:00 p.m. Form an orderly line on the right — no talking or showing, please.

For the information of the uninformed, compression ratios have been going up, just like taxes, since the day some dissatisfied character got tired of staring at the south end of a northbound horse and mixed electricity with the fumes of some kind of petroleum derivative to end up with a bang that pushed a piston — and his buggy, sans dobbie — down the road at a noisy but merry clip. In fact, you might say the importance of compression ratio to engine performance has reached such proportions that it has become almost a law of engine design; however, the factor that actually affects engine performance is com-

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pression pressure, not compression ratio.

Compression ratio is merely a mathematical thing having to do with the relationship of the capacities of cylinders and combustion chambers to each other, whereas the pressure exerted on the pistons in the engine during power strokes is dependent on compression pressure. It's true that an engine cannot have high compression pressures unless it has a high compression ratio, but it may have a high compression ratio and at the same time have low compression pressures because of leaks past piston rings and valves. Therefore, for an engine to utilize its compression ratio to the ratio's maximum, its piston rings and valves must effectively seal compression and combustion pressures in its cylinders during the thousands of compression and power strokes the pistons make each minute the engine runs.

The very nature of the construction and duties of the valves in an automobile engine make one wonder just how they can do the job they are meant to do, and when the conditions of heat and speed under which they operate are taken into consideration, it seems impossible that they can function as well as they do. It's these adverse conditions that make it so essential for the valves and their seats to get as good a start in life as they possibly can. This good start is up to the fellow who does the valve work.

For those who are interested, it is our plan to at this time review the finer points of a good valve reconditioning job and try to convey the importance of adhering to these points as a guarantee of a long lasting, efficient job that will allow an engine to utilize the full advantage of its compression ratio by maintaining compression pressures consistent with the maximum made possible by the ratio.

Although the design of engines varies in that some have overhead valves and others have their valves in the cylinder block, the many operations of a good valve job are the same for the two types. However, as the illustrations for this article show the operations as they are applied to an overhead valve engine, we shall make our words correspond to the illustrations by describing the operations as they were applied to this engine.

Assuming the engine has already been torn down, the first step in a thorough valve reconditioning job is cleaning the heads or cylinder block with solvent or kerosene and

CONTINUED on page 64



1. Clean heads thoroughly. File will remove any nicks or rust on head surface.



2. A scraper will remove pieces of the old gaskets and dirt from port surface.



3. A stiff rotary wire brush will clean carbon deposits from inside port passages.

## VALVE JOB continued



4. Before grinding new seats, measure the guide with a hole gauge to determine wear.



5. Check hole gauge with a micrometer and replace guide if clearances are excessive.



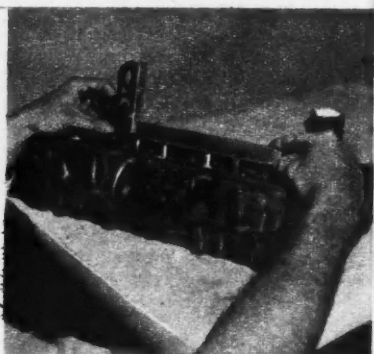
6. Tapered seat grinding guide can also be used to determine if guide is worn.



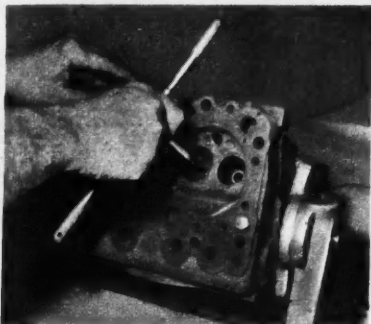
7. Worn guides, if replaceable type, can be driven out and replaced with new ones.



8. Coating of white lead on new guide provides lubricant between head, guide.



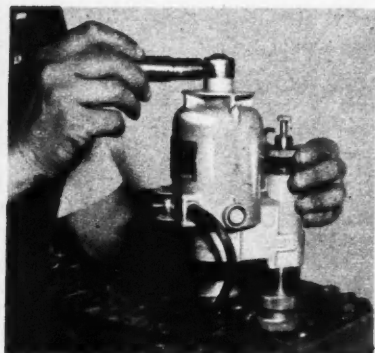
9. Replace half of the guides at a time, then use other guides for height check.



10. A tapered reamer of the correct size will clean bore to the correct diameter.



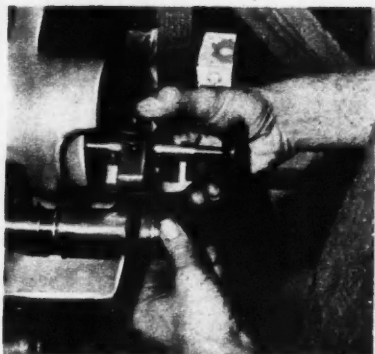
11. Small wire brush will remove all remaining chips before seat grinding guide is used.



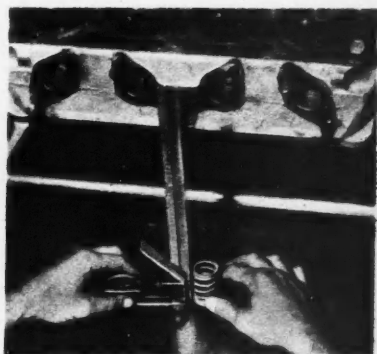
12. Next, grind the new seats. Make sure that stone is sharp and free of grease.



13. Reface the valves as described in text and replace any warped or bent ones.



14. Valve clearances cannot be kept unless valve ends are ground free of pits.



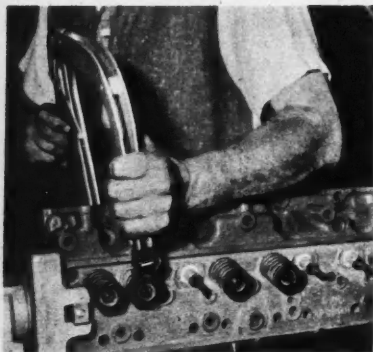
15. Check valve springs with square and replace those that are overly crooked.

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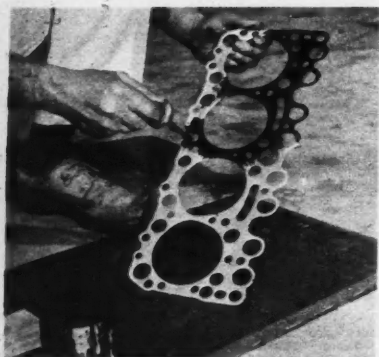
## VALVE JOB continued



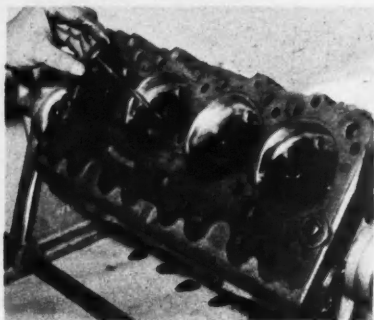
16. Check springs with tester and replace those that are below minimum tension.



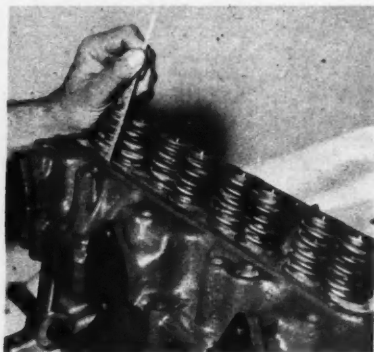
18. Compress the spring and retainer washer then install oil seal and keepers.



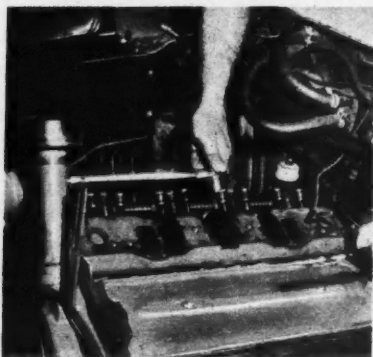
20. Light coating of aviation Permatex or other sealer helps hold head gaskets.



17. Oil the stem of the refaced valve and insert it in the guide for reassembly.



19. Measure installed spring to see if shims are needed to get correct height.



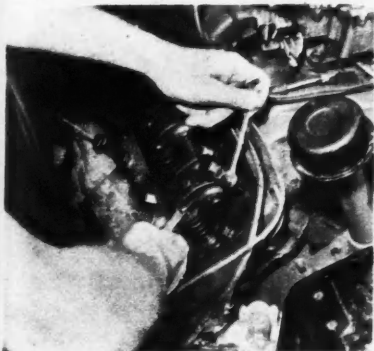
21. Install heads and torque bolts to the specified tension in their proper order.



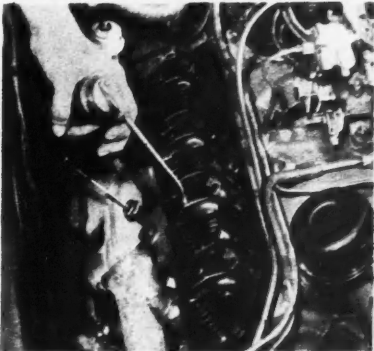
22. Make sure that all intake manifold surfaces are cleaned before bolting on.



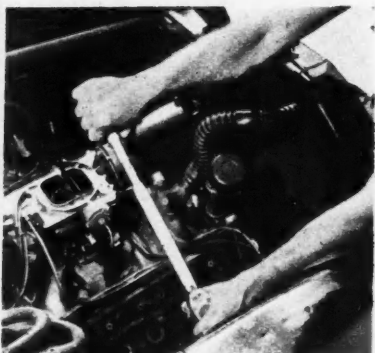
23. Tighten the intake manifold cap screws and also re-torque after engine is warm.



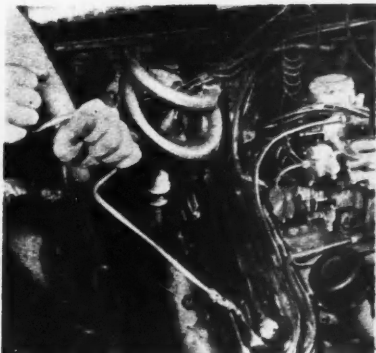
24. If engine has adjustable rockers or push rods, set and then warm up engine.



25. Before starting engine, oil rockers, continue until pressure reaches the shafts.



26. After engine is thoroughly warmed, re-torque head bolts as explained in text.



27. Valves adjusted while hot, heads re-torqued, replace cover, job is complete.



# THE SECRETS OF "C"

**By Valley Custom  
and Jim Potter**

ONE OF THE MOST consistent inquiries we receive from customizers all over the country is "How do I go about chopping the top on my car?" Rather than attempt an answer to this rather complex problem in our "Letters" column, we decided to give you the basic facts on top chopping in this comprehensive article.

With the help of Neil Emory and Clay Jensen of Valley Custom Shop, located in Burbank, Calif., who have experienced many top chopping episodes and know whereof they speak when discussing the problems involved, on the following pages we've shown how to chop a basic design top from as early as a 1928 model up to the '56 design current with automotive production today. If per chance your particular year and model isn't listed we suggest that you select one of the following illustrations that parallels your top's design and use it to employ the necessary dissecting procedures.

The basic fundamentals involved in chopping the top of the early-model box-type differ considerably from the late model cars which have more streamlined contours and thus present more complex problems. For instance, on the box-type top with its 90-degree angles, a strip of metal can be cut out all around and the top simply lowered into its new position and welded secure. On the more streamlined tops, (later models) when you've cut the material out and lowered the top to its new position, you'll find that contours don't match up, that bulges are created, that the top is too short; so it becomes necessary to proceed by using either one of two meth-

**CONTINUED**





# "TOP CHOPPING"



## TOP CHOPPING continued

ods described with the various illustrations on the following pages. Briefly, however, lowering the top on later model cars will require either the slanting of the windshield to a greater degree or "stretching" the top by cutting it at its center and welding an 18-gauge metal insert in the gap created when the front and aft sections are lowered to their new position.

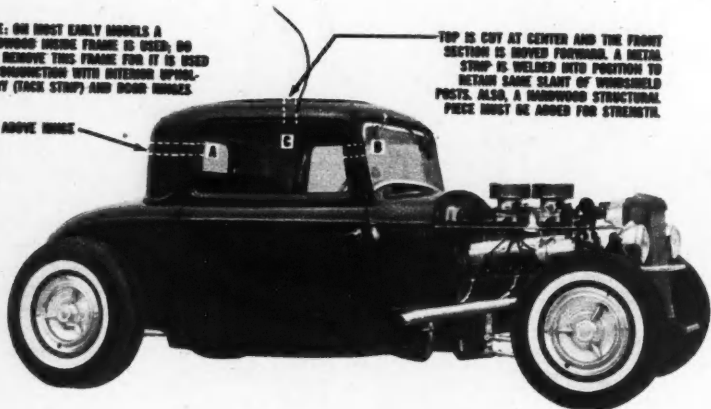
Basic tools required to do the job include a rather complete set of metal-working tools, including a torch with cutting and welding equipment, a hack-saw, right and left hand Dutchman tinsnips, various types of body files to fit different body contours, an electric grinder and various buffer discs, tinning compound, lead, metal prep, sandpaper, etc.

First step in any top chopping procedure

NOTE: ON MOST EARLY MODELS A HARDWOOD INSIDE FRAME IS USED; DO NOT REMOVE THIS FRAME FOR IT IS USED IN CONNECTION WITH INTERIOR UPOLSTERY (TACK STRIP) AND DOOR HINGES.

TOP IS CUT AT CENTER AND THE FRONT SECTION IS MOVED FORWARD. A METAL STRIP IS WELDED INTO POSITION TO RETAIN SAME SLANT OF WINDSHIELD POSTS. ALSO, A HARDWOOD STRUCTURAL PIECE MUST BE ADDED FOR STRENGTH.

CUT ABOVE HINGE

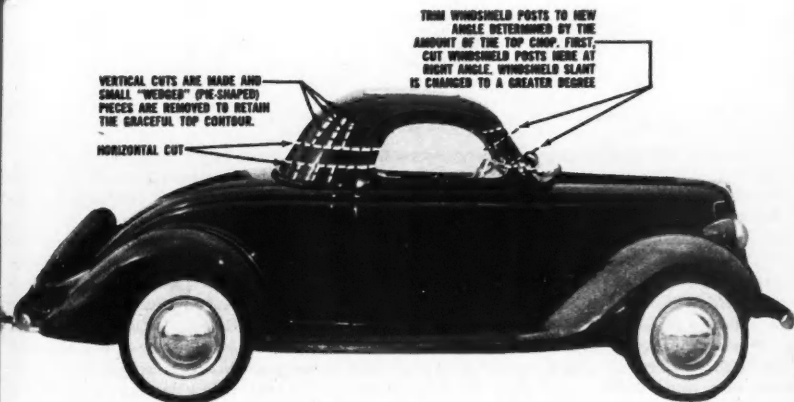


On Model A's and early model 3-window coupes, chopping the top is comparatively simple because of the square-type design. After removing all interior paneling, trim, seats and also all glass in windshield, doors, and rear window, carefully mark the amount to be cut from rear quarter section, door pillars, and windshield posts. Marking can be done accurately by taking a piece of metal or cardboard the same depth that is to be cut out of the top and wrapping it around each of the areas to be cut. Slant of windshield on Model A's offers no problems as it is set at 90-degree angle to the body; but on the 1932 Ford shown, the angle, though slight, is just enough to make it necessary to cut the top at center to move the front section forward in case the same slant of the windshield is desired. Then a 1" to 1½" sheet metal piece must be welded in place in the top center section to close the gap. Note that the cut is made above the door hinge in the rear quarter section so that this hinge can be retained. All garnish moldings, glass channels, windshield frame are cut to fit and tack welded first before the final welding assuring perfect alignment of all modified components.

is to remove the windshield, all side and rear window glass, seats, all interior trim including the headliner, side panels, etc. Now, you're ready to carefully measure and mark the cuts to be made (a 4" chop is about maximum for most satisfactory results,) and most important, study the illustrations shown and determine your method of operation before using that hacksaw (don't use a torch). Re-

member that the care taken in measuring and fitting will save you innumerable headaches later on when you weld the sections back together and refit the cut glass which, incidentally, should be assigned to a glass shop.

Top chopping, while admittedly more complex and requiring more metal working skill than most customizing projects, need not be a stumbling block to your "full" custom car.



TRIM WINDSHIELD POSTS TO NEW ANGLE DETERMINED BY THE AMOUNT OF THE TOP CHOP. FIRST, CUT WINDSHIELD POSTS HERE AT RIGHT ANGLE. WINDSHIELD SLANT IS CHANGED TO A GREATER DEGREE

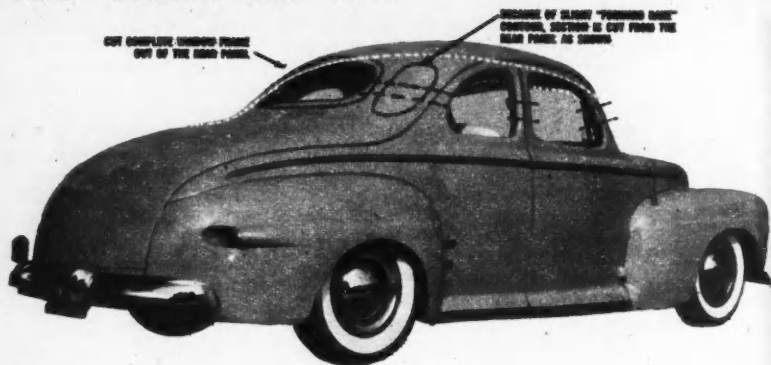
VERTICAL CUTS ARE MADE AND SMALL "WEDGED" (PIE-SHAPED) PIECES ARE REMOVED TO RETAIN THE GRACEFUL TOP CONTOUR.

HORIZONTAL CUT

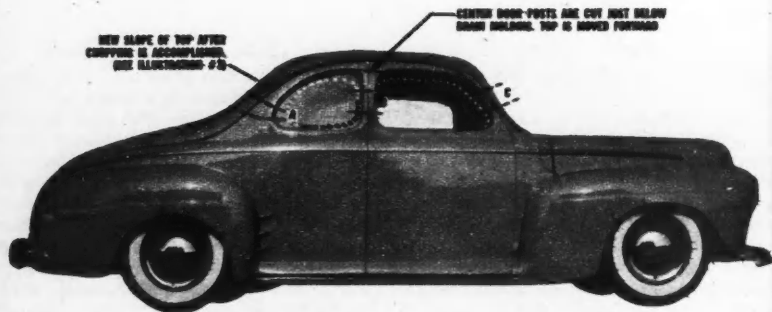
On this 1936 Ford 3-window coupe, it has been decided to slant the windshield to a greater degree after chopping the top. Thus, after windshield posts are cut at right angles, top and bottom as indicated in photo, they are trimmed to new angle determined by amount that the top is chopped. Best procedure is to trim off a small amount of material at a time, fitting top carefully to posts until exact angle is obtained. After horizontal cuts are made in rear quarter top panels (sometimes a customizer will choose to cut an extra inch out here to give the top a "rake" to the rear,) top is actually moved back slightly when metal section is removed; this creates a bulge in panel because of its crown-type contours. Then, vertical cuts are made both above and below horizontal cuts and "wedged" (pie-shaped) pieces of metal are removed to obtain correct contour; these joints are then hammer welded and/or welded, and leaded, smoothed with an electric grinder to perfection prior to priming and painting. Rear window, in this case, is made smaller by modifying its frame to fit new shape of opening. After all metal work is done, glass shop is called in to fit all new glass.

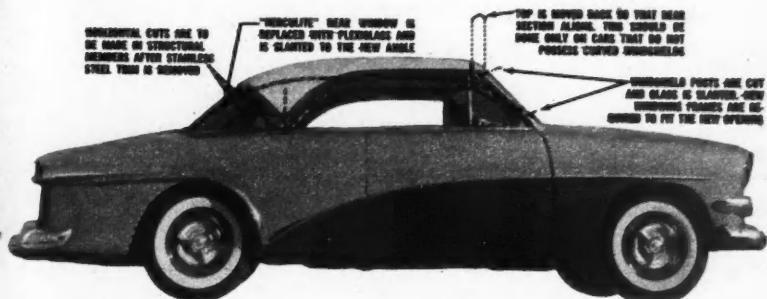
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## TOP CHOPPING continued



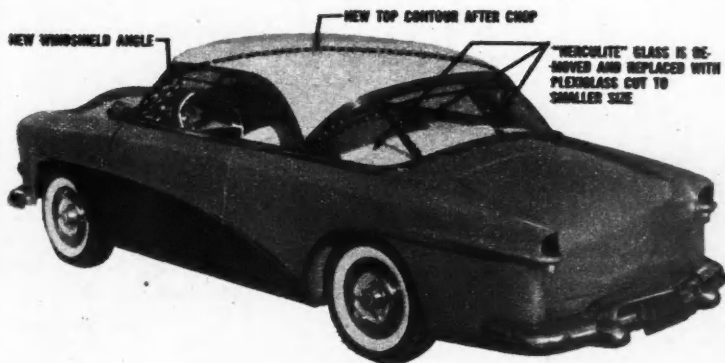
Essentially the same problems are encountered when chopping tops of any 1934 through 1948 Ford coupes. The later the model the more difficult it is to fit the cut sections of the top because of the more streamlined (slanted angle) contours of the later models. On this 1942 Ford coupe, the rear top panel is cut out completely as is the rear window, although the latter may be retained in its original size if desired and repositioned at a greater angle and lower point to fit the new rear section slope. Now, other cuts are made at points A, B, and C to lower top the desired amount. Then with door pillars cut just below drain mold, top will be free to move forward and down and welded into its new lower position. A piece of 18-gauge metal is cut to fit the new contour obtained at the rear top panel and welded into position. When welding door pillars, be sure to allow proper clearance for glass channels as any irregularities may cause binding and thus breakage of the re-cut glass when moved up or down.



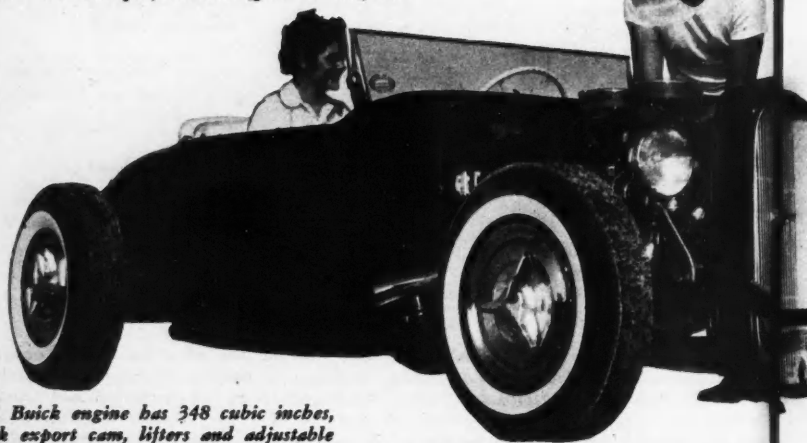


Similar problems are encountered when chopping the top of a hardtop, although the centerposts and door posts of tudors, fordors, and coupes are not involved. On this 1951 Ford hardtop with the V-type windshield, posts are re-slanted and top is moved back after chopping to meet the body at the rear. Biggest problem is in the rear window or windows. In almost all cars, this rear window glass is Herculite which, because of its composition, is almost impossible to cut. Therefore, Plexiglass is substituted which, while initially satisfactory, will scratch and discolor in continuous strong sunlight. The stainless steel trim, both at windshield and at the rear, must be removed prior to any cutting of structural members. After top is lowered and welding is completed, these trim pieces are carefully fitted and cut at the bottom so that additional clips are not required to cover modified sections. Glass frames, which are an integral part of side windows and rear-quarter windows in hardtops, and windwings, must be cut down and reshaped in order to fit the smaller space allowed by the lowered top. These should be fitted only after top is welded to body.

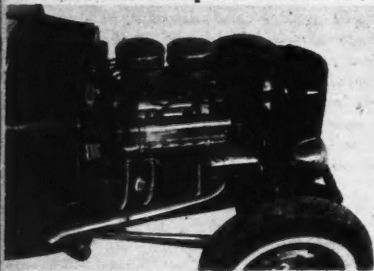
CONTINUED on page 62



*Everett McFarland of Phoenixville, Pennsylvania admits that his wife Dottie is never satisfied with their beautiful maroon '32 roadster and is constantly coming up with little changes to improve looks and performance. Quite a boss, eh?*



*1955 Buick engine has 348 cubic inches, Buick export cam, lifters and adjustable rocker arms. Horsepower estimate is 300.*

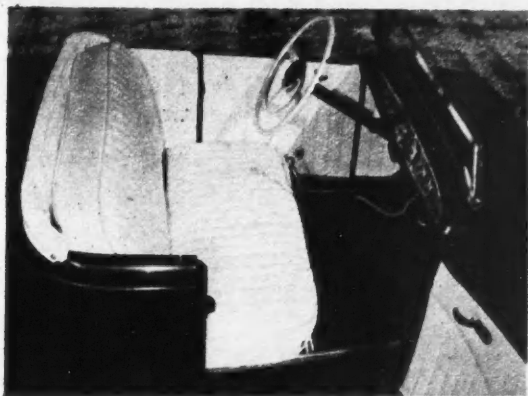
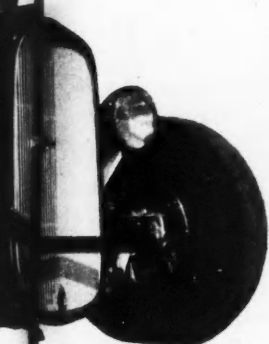


## SPARE TIME

*drags and auto shows make up McFarland's sanitary*



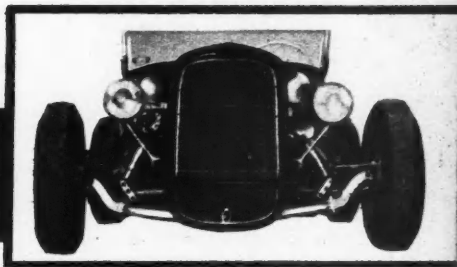
*Deuce body was channeled six inches over stock '32 frame and windshield chopped to seven inches. Headers are custom and the Edmunds intake manifold uses dual quads.*



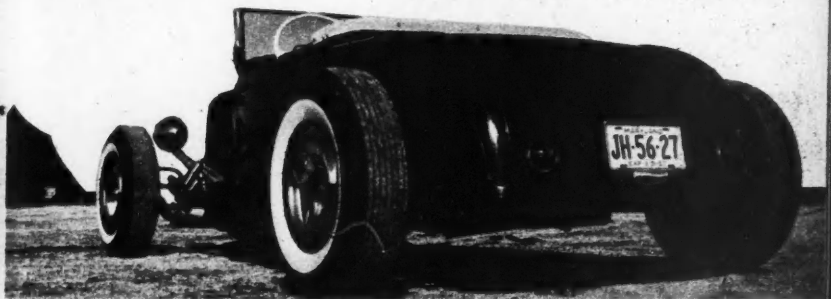
*Interior trim was done by Miller Auto Top of Parkerford, Pa. White naugahyde and black carpeting provide passenger comfort, S-W instruments give engine readings.*

## **SPEEDSTER**

**specialized diet for Everett  
competition street roadster**



*'32 Ford front suspension has been retained but axle is dropped. Tubular shocks are hooked to special long spring shackles.*



*During the past year, nine trophies have been won by McFarland's car. Part of these were from car shows and the others were from drags with a top time of 106 mph.*

## CUSTOMIZING

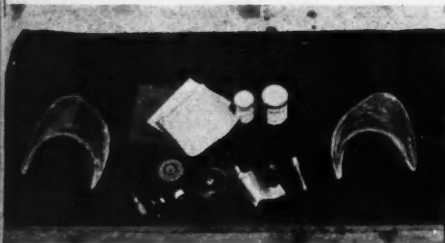
# with the "PLASTIC SURGEON"

PART III

Text and Photos by Jim Potter



SHADED HEADLIGHT styling is playing a large role with customizers and their custom cars these days, and that's just the item that the "Plastic Surgeon" has on tap for this month's fiberglass restyling session. The method employed by the "surgeon" is one that deals with pre-cast fiberglass shades that fit the front fender contours of any '49-'50, or '51 Ford, which are easily laminated to the fenders with metal-bonding Epoxy resin. Aside from the nominally priced "Headlight Shade" kit, only hand tools are deemed necessary for the fiberglass customizing caper. Many other '49-'51 Ford restyling kits are available from the "Plastic Surgeon", which were featured in our November '56 issue. For further information write: Lee Rockwell, Box 1, Tustin, Calif.

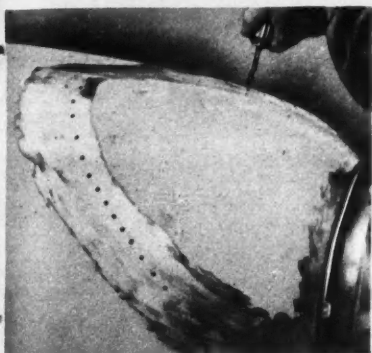


1. Here is the complete "Plastic Surgeon" headlight kit for all '49-'51 Fords.

2. Using a No. 36 close coat grinder disc, thoroughly clean paint from bonding areas.







3. Drill  $\frac{1}{8}$ " holes along bonding areas to allow resin to seep through to form rivet.



4. Attach shade to fender with two metal screws before applying the Epoxy resin.



5. After mixing "Plastic Surgeon" resin with catalyst hardener, saturate seam area.



6. After allowing resin to thoroughly dry, grind surface semi-smooth with grinder.



7. Blocksand surface to perfection with 320 sandpaper (wet), then prime paint.

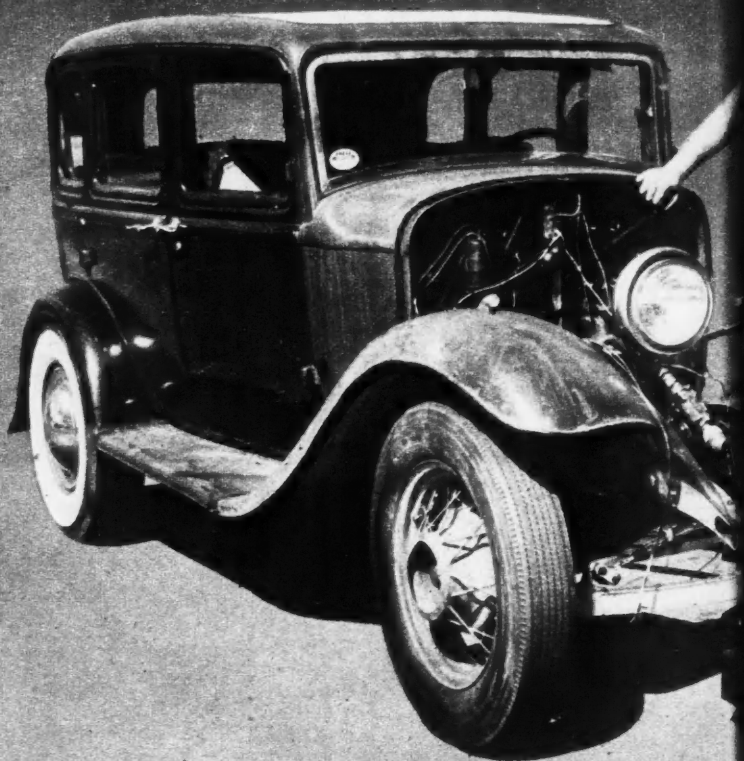


8. Finished job lends this customized appearance. Stock light rims are retained.

**ENGINE SWAP:**

# **BUICK V8 FOR**

**another sleeper to give  
drag strip a real run for**





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# '32 FORD

the boys at the  
their trophies

Photo story by Eric Rickman

**G**OING TO SCHOOL nine months out of the year doesn't leave much time for a fellow to make money, but when you are determined to own an unusual car, as was Dave Buller of Van Nuys, California, a lot of work can be crowded into a three month summer vacation. By working 14 to 16 hours a day all summer, Dave banked enough money to buy a '32 Ford four-door sedan that had been channeled down over the frame and fitted with hydraulic brakes. Best of all, there was still enough money left to have a late model overhead valve engine installed.

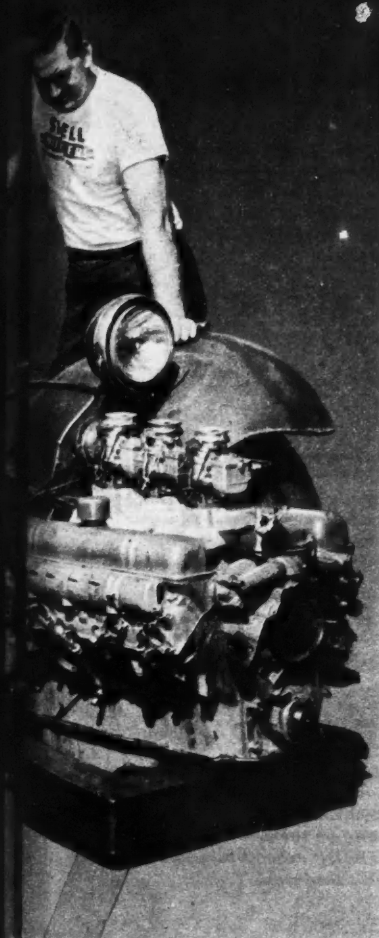
Lewie Shell sold Dave a '55 Buick Century engine from the large stock of used engines in his Los Angeles warehouse, 11726 Wilshire Blvd., L.A. 25, Calif. Also included in the package deal was the complete installation in Lewie's shop and a courtesy car for Dave to drive while the work was done. Tom Logan and Harry Paulson do the engine swaps for Lewie, with the average swap being accomplished in about three days from start to finish.

The principle problems encountered included the necessity of moving the steering gear box outboard nearly an inch, moving the radiator forward one inch which required new hood panels, and a bit of torch work on the firewall since the body had been channeled over the frame with the firewall opening dropped. The brake pedal arm was offset slightly to clear the larger Buick bell housing.

The finished installation provides dynamic performance for the old sedan and after Dave digs the rest of his loot from the vault to complete both interior and exterior, the car should be a crowd pleaser on street and strip.


*Tom Logan is the man who does engine swaps for Lewie Shell, and here he contemplates the possible tight spots he is going to encounter when he drops the '55 Buick V8 into a channeled '32 Ford-door sedan.*

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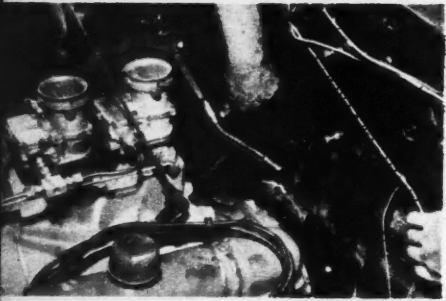


## ENGINE SWAP:


continued



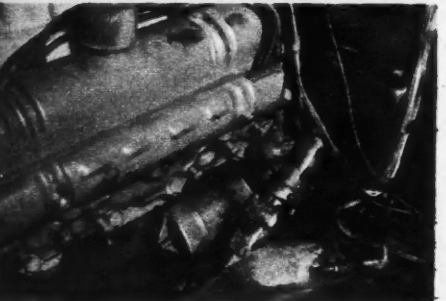
1. Ford transmission was adapted to the Buick V8 by means of a Cook adaptor which also included a pilot bearing adaptor. Flywheel and pressure plate are Buick; clutch disc, Ford.



2. Since body had been channeled down over the frame, it was necessary to do a bit of trimming on the firewall before the Buick engine would slip back to the Ford transmission.

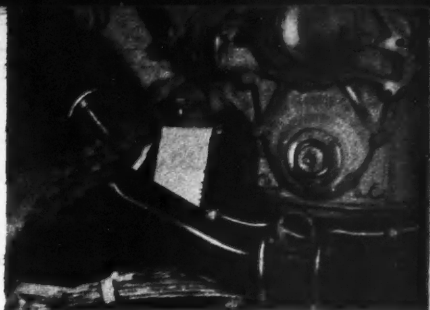


3. Steering gear box had to be moved outboard about one inch so side of frame was cut out and an extension made to the frame. Top and bottom flanges on the frame were not disturbed.



4. With the steering gear box moved, the Buick starter will fit and the steering column has ample clearance on the bell housing. The left exhaust manifold was used stock.

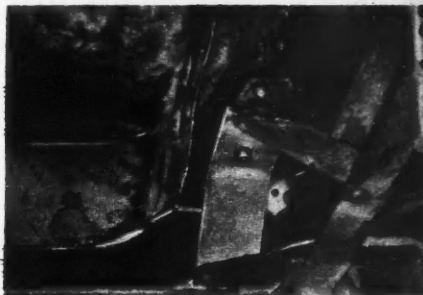
5. The stock Buick brackets and insulators were used on the engine and cardboard templates were formed to fit between the insulator and frame. Engine was centered and leveled first.



6. After templates had been designed, they were transferred to  $\frac{3}{8}$  inch steel plate and the plate then drilled for mounts and bent to the necessary shape.



7. With mount welded in place and supported from both the front and side frame members, the engine is firmly mounted. No steering linkage problems are encountered with oil pan.




8. Previously installed '39 Ford hydraulic brake and clutch pedals did not line up with the Ford throwout arm so a longer arm was welded in place and braced by the shorter, original throwout arm.




CONTINUED

## ENGINE SWAP:

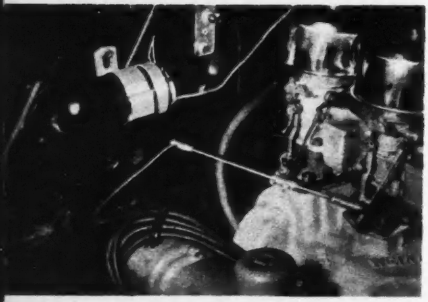
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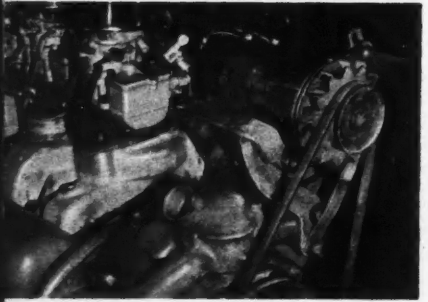
9. Another problem encountered with the '39 brake pedal was the interference between the brake and the larger Buick bell housing when the pedal was depressed. Slight offset eliminated this.



10. The generator mounts cast as part of the right exhaust manifold had to be cut off to clear the hood side panel and a notch was cut in the frame top flange to clear manifold outlet flange.



11. Stock '32 throttle linkage was used with Weiland triple carburetor manifold by merely bending end of firewall linkage toward center of car. Ignition was left stock.



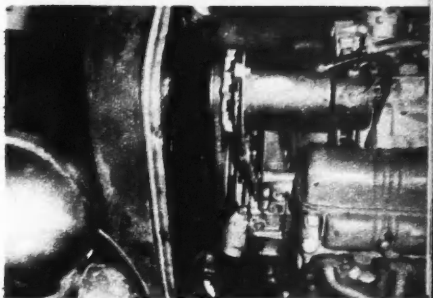
12. Generator had to be mounted high and above engine to clear narrow '32 hood panels. Bracket was made to fit between the water outlet and intake manifold bolts.



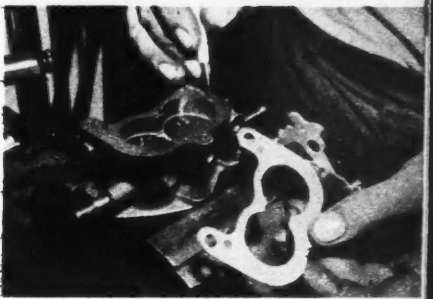
12. Radiator would not fit back in chassis with longer Buick engine mounted so an extension bracket was made to set the radiator forward slightly over an inch.



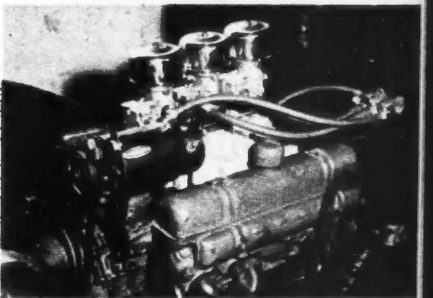
14. Radiator core was replaced with a  $\frac{3}{4}$  inch thicker core and hose connections changed to match the Buick engine. Fan was not used with cool running Buick mostly due to lack of space.

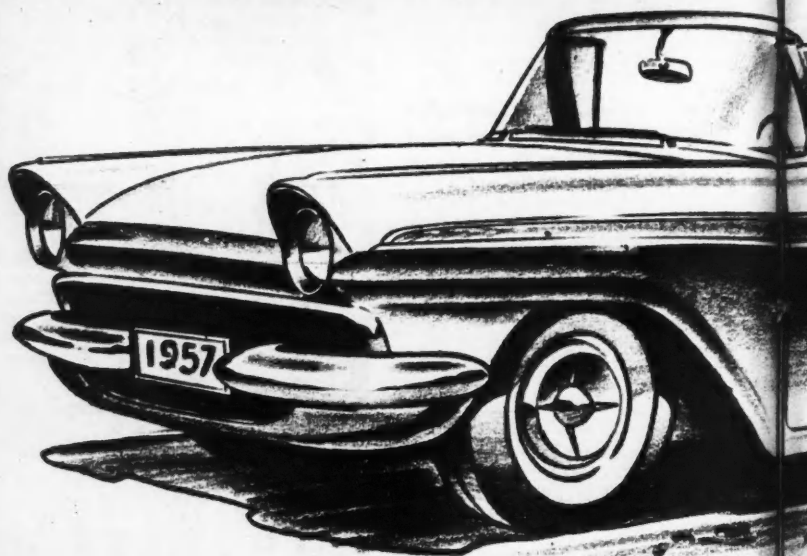


15. Split vacuum in late Ford 97 carburetor was blocked by use of early solid gasket so that full manifold vacuum could be used on Buick distributor. Lead shot can also be used to block venturi passage.



16. Nearly completed installation. '32 electrical system was switched to 12 volts with Buick voltage regulator in engine compartment and a 12 volt battery under car floor.





## VALLEY CUSTOM



*Neil Emory*

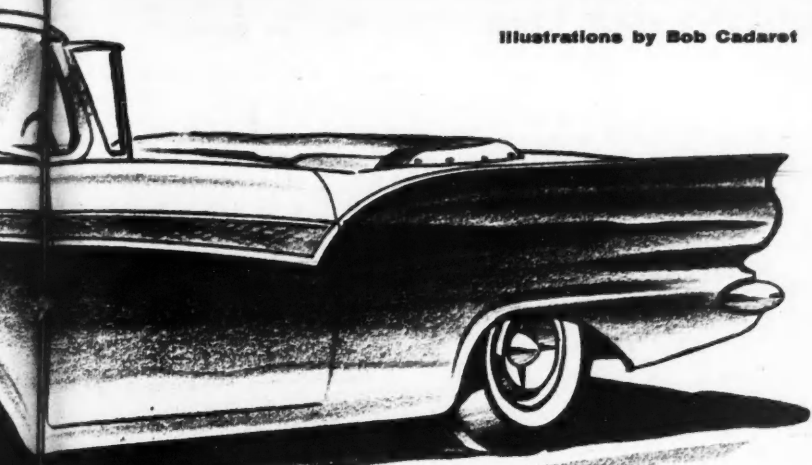
## RESTYLE

**H**OW 'BOUT this new '57 Ford? Predictions have it that this new body style will take its place with the previous FoMoCo models that have established themselves as classical to all custom car enthusiasts. Torch capers on the new Ford this month emanate from the teaming Valley Custom Shop with co-owners, Neil Emory and Clay Jensen, doing the honors. Neil and Clay's special work has been featured many times in the pages of CAR CRAFT, and again their talents prove an excellent combo for making a new breed out of Ford's new product.

### BODY MODIFICATIONS

Actual body modifications were kept quite

Illustrations by Bob Cadaret



## YLES the '57 Ford

conservative. Door handles were removed and replaced with an electrical actuating system. All medallions and insignias were discarded and holes filled. A two and a half inch lowering job was performed on the suspension systems both fore and aft.

### HOOD, GRILLE AND HEADLIGHT MODIFICATIONS

Most noticeable alteration up front is the split bumper-grille combination. The Ford's complete grille assembly was removed from the cavity along with the front bumper. A lower grille pan from a '53 Studebaker was spliced to the Ford's lower front body panels that now border the cavity's new opening.

Combination bumper-grille piece is a much modified '47 Oldsmobile bumper that diminishes back into the grille's stark opening. Position of license plate is novel since it reposes in a well guarded spot sandwiched between grille pieces. Stock headlight rims have been discarded with headlight units tunneled deep into fenders. This allows the stock heavily shaded hoods to set the predominant theme eliminating the "hyperthyrod" styling condition wrought by the factory. Small exterior trim piece has been removed from the hood and front hood corners have been radiused. All fender and body seams have been filled-in lending the panels a more molded and compact appearance.

**CONTINUED**

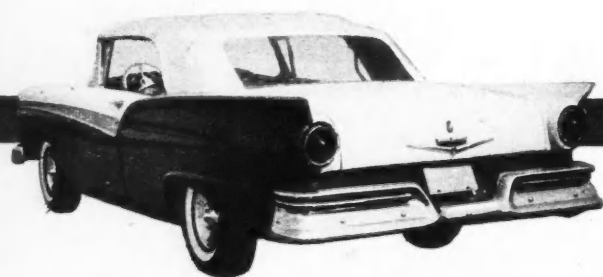
## RESTYLING THE '57 FORD continued

### REAR FENDER AND TAILLIGHT MODIFICATIONS

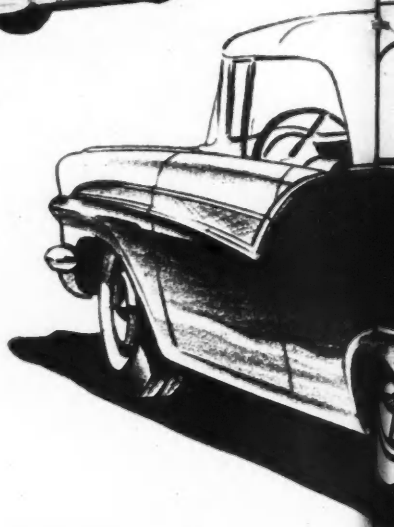
Rear end styling takes on the same smooth custom appearance as that of the front end with its split bumper and extended and rolled rear body panels. Again, a '47 Oldsmobile bumper was used to create the rear bumper styling. Rear body paneling was extended with sheet metal and tucked and rolled under, achieving a very sanitary appearance along

the lower edge of the body. Buick fender trim (portholes) are employed as exhaust tips. Flowing fender fins are unaltered, but taillight rims have been frenched. Novel three-point triangular pieces repose in tunneled taillight housings where stock lenses are considerably recessed back into the openings. Smooth rear end appearance is further augmented by removal of exterior deck lid trim.

It's interesting to point out that Valley Custom's restyling treatment of the Ford did



PARTS AND PRICE LIST	Labor	Parts
Remove trim from hood, grille shell, fenders	\$30.00	.....
Remove trim from deck lid. Install electrical system (parts included)	50.00	.....
Remove door handles and install electrical system (parts included)	55.00	.....
Recess and tunnel headlights	65.00	.....
Fill hood shell, round front hood corners	40.00	.....
Adapt Studebaker grille pan and install bumper-grille combination ('47 Oldsmobile bumper)	225.00	.....
French and recess taillights. Add special made taillight dividers. Extend and roll lower rear body panels	175.00	.....
Install special rear bumper ('47 Oldsmobile)	100.00	.....
Lower suspension systems both fore and aft (2 1/2 inch drop)	70.00	.....
Two-tone paint job	190.00	.....
Exhaust tips (optional)		
<b>Total</b>	<b>\$1000.00</b>	

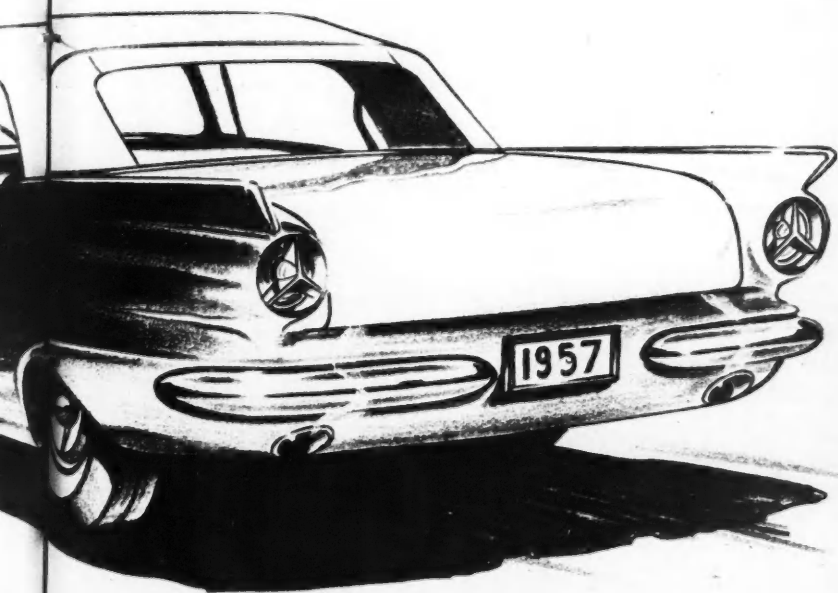


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not deal with common practice of customizing; that of truly disguising the original product, but rather emphasizing the styling lines that the factory originally incorporated into the car. They actually worked with many of the stock components, and many were left completely unaltered. The special bumper and grille treatment are the only two items that actually required custom made pieces, proving the prediction that the '57 Ford will become a true classic to customizers.



*Clay Jensen*



READY MADE

TOP

Product by Tom Mink

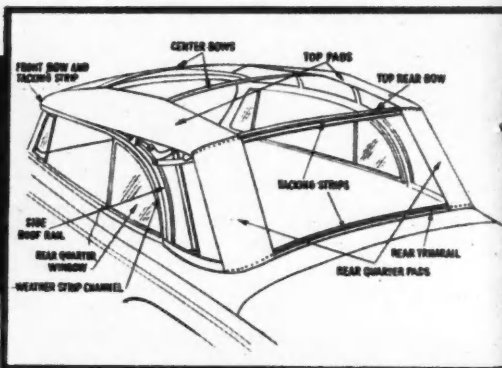
easy-to-install product for ragtops that are on the ragged edge!

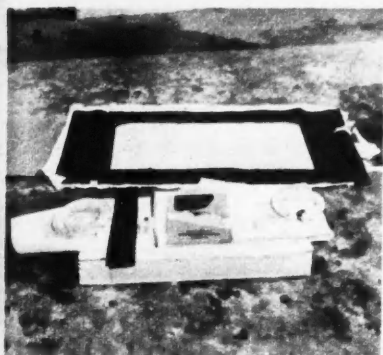
**I**F YOU ARE the owner of a convertible and can see the sky almost as well with the top up as when it's down, look through this story closely and then hang onto this issue! We'll now show you how to save half the price of having a new top installed. The do-it-yourself top we show on the next six pages is manufactured by the Atlas International Company and is retailed through many auto parts houses throughout the country as well as all Sears stores and trim shops.

The top kits are available in several colors and grades of materials. They are cut and sewn to match the original top they are to replace. Best of all, they can be installed by anybody capable of following an instruction booklet

and the pictures on these pages. The only tools needed are usually found around any home, a hammer (preferably a tack hammer), pair of scissors, screwdriver and a razor blade. A few hours in the garage some evening or Saturday is all that is needed to replace the torn or rotten top on your car.

Prices range from around \$39.75 to \$59.00 for the popular low priced convertibles such as the "big three" makes, with the better grade materials naturally costing the higher price. Should you have a top made to fit your car by the average top shop, the price would range from about \$65 to better than \$100. Look the pictures over and you will see how to save quite a few bucks.

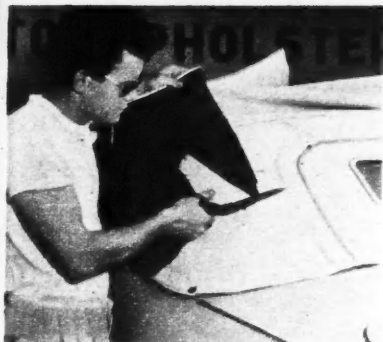




1. Kit used in story is complete with a plastic rear window, tacks, instructions.



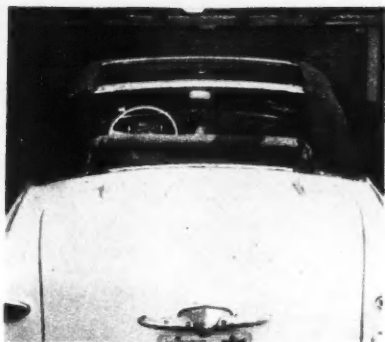
2. First step is to lay new top over old to make sure correct top has been bought.



3. A pair of scissors or razor blade to slice cloth are used to remove old top.



4. Top is held to frame by three tack strips. Pull cloth to remove old tacks.



5. Top is gone but pads are left. Pads may be tightened by loosening, retacking.



6. Rear window panel is first and is positioned to the frame over the old pads.

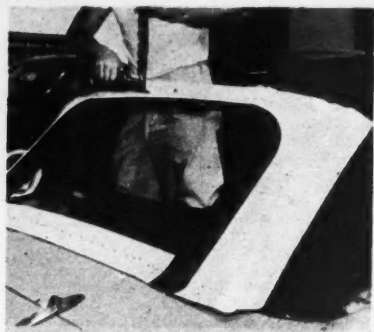
CONTINUED



## READY-MADE TOP continued



7. After a few tacks are used to position panel, tack from center out to keep tight.



8. Excess material is trimmed above the tack strip. Sides need not be trimmed.



9. Bottom of rear panel is also trimmed. Zipper can be cut with diagonals or razor.



10. Weather strip and channel must be removed from frame over rear  $\frac{1}{4}$  window.



11. Cord welt is tacked to the front bow to cover gap between bow and windshield.



12. New top is then thrown over top bows and sides fastened down to the car body.



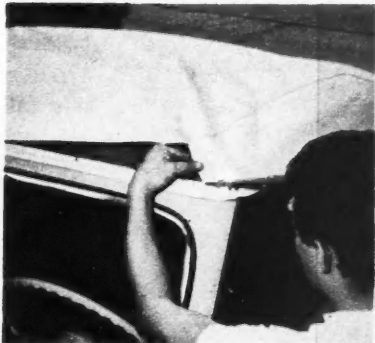
13. With top centered on frame, tacks are used at rear window corner to hold cloth.



14. Next, the top is stretched forward over bows to the front bow and tack strip.



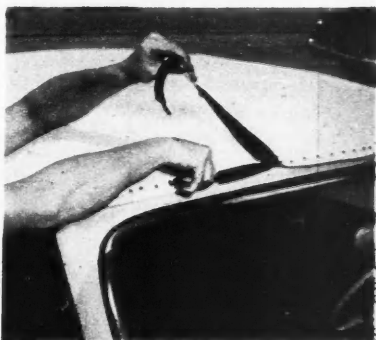
15. Hemmed edge above door is positioned and tacked to corner of front bow.



16. Small slit is made in each front corner like this so top can be stretched.



17. With corners tacked, top cloth is stretched forward and tacked to front bow.



18. Excess material is then trimmed off just above the front cord weather well.

CONTINUED

## READY-MADE TOP continued



19. Slice in top above rear window allows cloth to be stretched and tacked to strip.



20. To remove wrinkles, top is slit further. Don't slit beyond the tack strip.



21. Cloth below rear bow can now be stretched tight and all wrinkles smoothed.



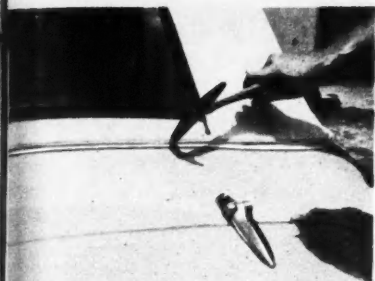
22. Top flap is next pulled down over the rear bow to take up slack, then tacked.



23. Cord welt is tacked to cover gap between top and body. Ends doubled under.



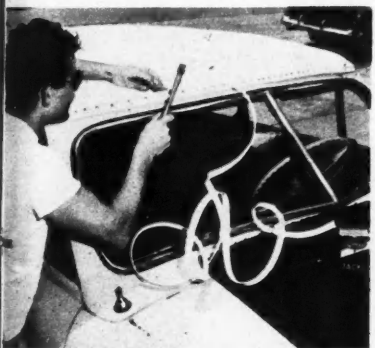
24. To cover tacks, a double wire-on trim welt is tacked on and bent over tack heads.



25. Light taps with a hammer firmly crimp wire-on wirt to give finished appearance.



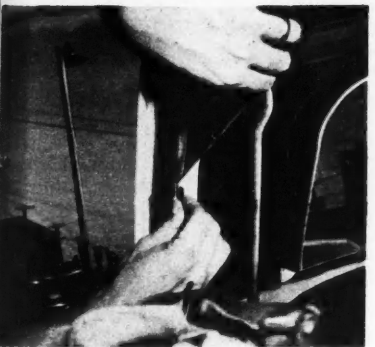
26. Wire-on wirt is also needed on rear bow tack strip to conceal tacks used.



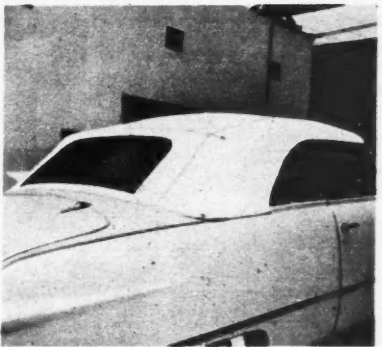
27. Final strip of wire-on is needed at front bow. Metal tips finish strip ends.



28. Cloth flap at rear quarter window is fastened beneath weather strip channel.



29. Excess material inside channel is trimmed off with a razor to complete job.



30. Finished product looks perfect, fits smoothly and is not an expensive item.

# FLASHY forty



*The blue metallic painted body of the Ford has been lowered conservatively both fore and aft approximately four inches. Lowering blocks are used at the rear, while up front, a dropped axle is installed. Note tedious striping*



*Heavily etched headlight styling incorporated into Ford's tendency where little an animal appears once it is compared to the common practice of merely mounting in rim. Round end was employed to achieve smoothly contoured edge about headlight rim assembly. The rim itself emanates from '30. Car. Small diameter wheel end again was used to surround the checker-boarded Chevrolet grille. While grille modifications were under the hood, fender was removed from hood and splash pan molded to body.*

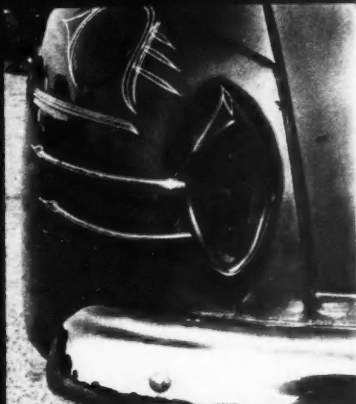
# ty-eight



48 Ford taillight lenses are positioned vertically in deep, special sheet metal shades. Chromed trim lends added styling.



"Strictly for show," that's the motive behind "Red" Bender's elaborately styled '48 Ford Tudor. And befitting it is, too, for Red's father, Gene Bender, is promoter of three of Northern California's largest annual auto shows. Torch work on Ford is credited to Hudleston's Custom Shop at San Jose, California. The unusual appearance of the Taylor, as compared to many of its brother products, is derived by the use of late component switches in the grille and headlight departments.



## TORCH TIPS:

# '56 PACKARD TAILLIGHTS

—an easy  
Installation

IT'S ONLY a question of time 'til the new and sleek '56 Packard taillight lens makes its "big splash" into the realm of customizing. Already this large lens has put in an appearance on many customized products with many more predicted for the future. Fascination stems directly from the lens' weird, but beautifully sculptured contour. Its "dorsal fin" shape is a natural for those enthusiasts who wish to achieve the ever-increasingly popular "jet tailed" styling. Various adaptations can be accomplished. The complete assembly, lens, backup light and chrome outer frame can be installed as complete unit. Alternately, the lens can be utilized by neatly frenching it into the fender, bordering the edge of the lens with small diameter round rod. The lens also has potentials for being installed in an upside down manner for some models. The following feature deals with the frame and lens installa-

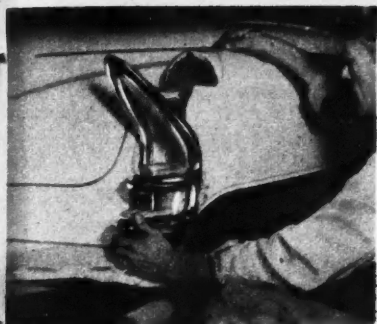
tion, but other adaptations can easily be realized from the step-by-step construction photos. We wish to extend our appreciation to George Cerny's Custom Shop located in Compton, California, for this very informative and timely installation.



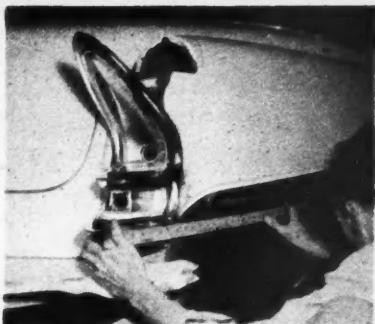
1. '54 Olds was used for installation. Fender area has to be relieved as shown.

Text and Photos by Eric Rickman

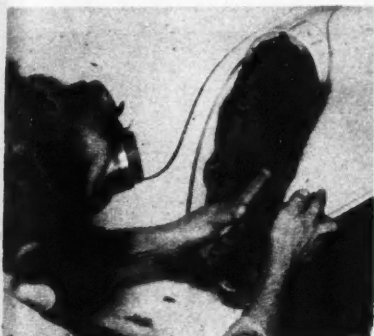




2. Alignment of Packard assembly is very important. Here, height is being checked.



3. Next, side angle and contour alignment are thoroughly checked out with yardstick.



4. Fender is relieved of more material necessitating fit. Spread opening slightly.



5. Small mounting flanges are made by bending in edge of fender, then drilling.



6.  $\frac{1}{8}$ " welding rod is now formed along the upper section of the Packard's frame.



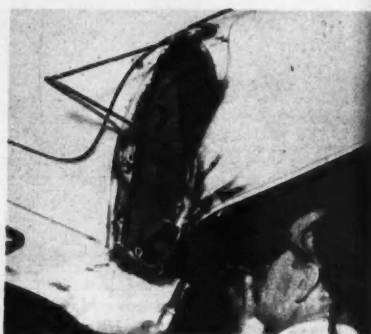
7. Another piece of  $\frac{1}{8}$ " welding rod is formed along the lower section of frame.

CONTINUED

## TORCH TIPS continued



8. Frame, with rod temporarily attached, is secured to fender, then rod spot welded.



9. Welding rod is now securely welded to fender. Note extra weld rod brace at top.



10. Another short welding rod brace is attached across the center of the opening.



11. A complete alignment check is now made of framework before continuing.



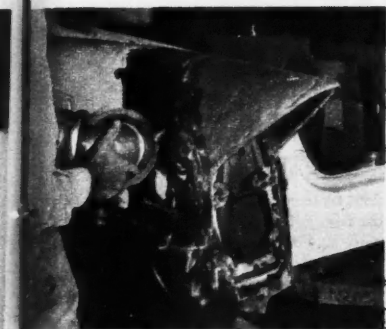
12. With frame and weld rod cage perfectly aligned, small gusset is added at tip.



13. A cardboard template is made of area to be filled in, then transferred to metal.



14. Metal fill-in piece is formed over fender area, clamped with vise-grips.



16. Grind weld smooth with grinder. Clean weld beads thoroughly with rotary brush.



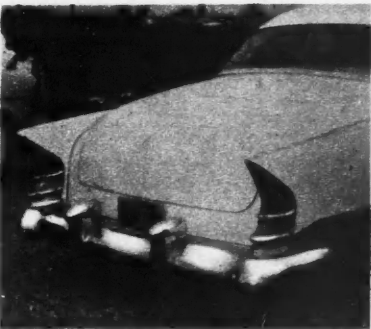
18. Finish surface off with vixen file. Block-sand thoroughly, then prime paint.



15. Filler piece is first spot welded then solidly welded to fender and cage.



17. Tin working area. Apply lead with soft torch heat, spreading with paddle.



19. Packard taillight's popularity is due to its radical, yet sculptured appearance.



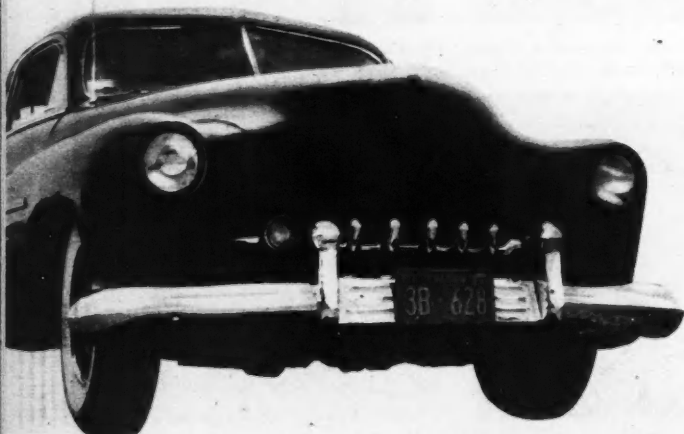
*The '49-'51 Merc grille cavity proves a natural for the '54 or '55 DeSoto grille assembly. Grille assembly has been shortened slightly. Notice how DeSoto grille piece is mounted along the gravel pan.*

## STYLE REPORT:

*theve*  
**'54 and '55 D**

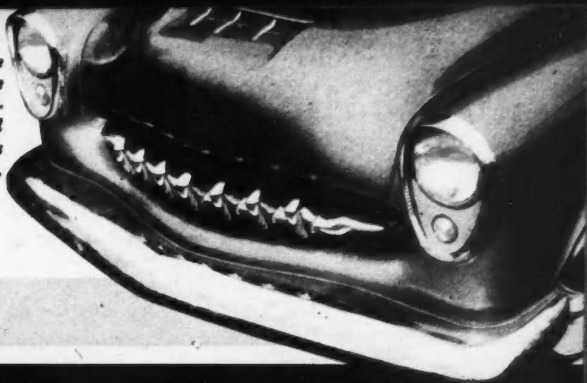
**H**IGHLIGHTING some of the better grille innovations that we have seen recently are those that incorporate the '54, or '55, DeSoto grille assembly. Vertical type grille "teeth" have always held a certain fascination with custom car builders — and with this being true, the DeSoto grille piece is made to order. It's a grille component that can be easily modified

to fit almost any grille cavity with little work involved. The center area of the assembly can be shortened or lengthened, whichever might be the case in point. So, when you're in the market for a universal grille piece for your next custom car — this assembly might just be the item that you've been trying to come up with.



*Another Merc installation; only a '54 DeSoto assembly is employed. Shortened some twelve inches, assembly is supported by special metal straps fitted in opening.*

Two '49-'50 Merc grille shells were used to create this oval opening. '54 DeSoto grille piece is shortened considerably and has ends of the assembly reworked.



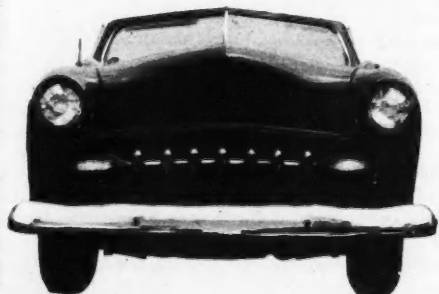
versatile

## '54 DeSoto grille bar



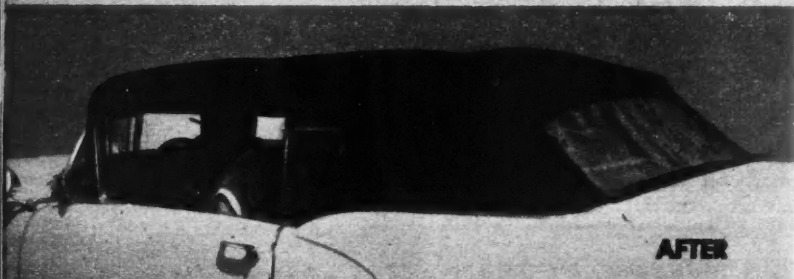
Utilizing tubing along perimeter of grille cavity, this '53-'54 Merc possesses a neat custom appearance with '54 DeSoto bar.

'53 Chev grille shell was used to surround this '55 DeSoto grille assembly. Grille piece is shortened slightly at center.



A special oblong cavity houses shortened '55 DeSoto assembly in this '49-'50 Ford. DeSoto grille piece can easily be shortened or lengthened by making alterations at center of bar.

# ACCESSORY OF THE MONTH



## SENSATIONAL BRUSH-ON CONVERTIBLE TOP DRESSING



Photos by Eric Rickman

**WE** ARE ON SOMEWHAT of a "winter protection kick" for ragtop owners this month so we just couldn't pass up reporting on a presentation we witnessed recently at Gil Hutton's "Auto Glamour" located at 2729 South Figueroa, Los Angeles, for protecting — preserving — and beautifying faded and moderately worn convertible tops. The miracle top dressing is called "SEALIT". It is a liquid material that can either be easily brushed on or sprayed onto the surface with a standard paint gun. Its specialized chemicals consist mainly of a wax resinous base formulated to penetrate into the threads of the fabric and also into the weave, thereby leaving the top with a durable protective surface that guards against the most common elements of wear —

dust, grit, sun rays and water. In "SEALIT" there is also a special ingredient that eliminates mold or mildew from setting in after consistent exposure through the winter months to rain, snow and dampness. The finish that "SEALIT" leaves on the top is one of its greatest assets. When dry, it does not have the "painted on" or, "high glossy" appearance that many top dressings possess. But rather, it leaves the newly dressed surface with an equally even "semi-flat" appearance that is apparent on new tops. "SEALIT" is moderately priced and can be purchased at most automotive accessory stores. If the product is not available in your locale, then we suggest you write to: Sealex Corporation, 1545 East Washington Boulevard, Los Angeles 21, California.



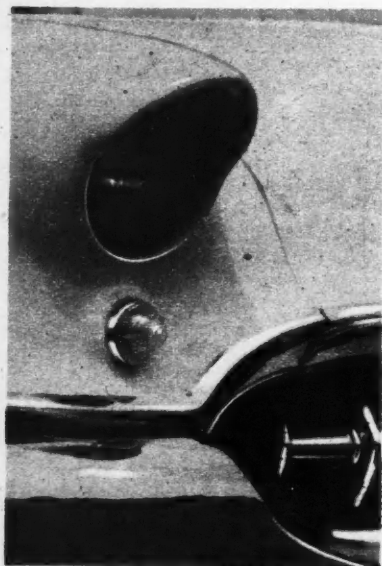


**GRAB BAG:**



# "SHADES"

**the  
magic word  
with restylers**



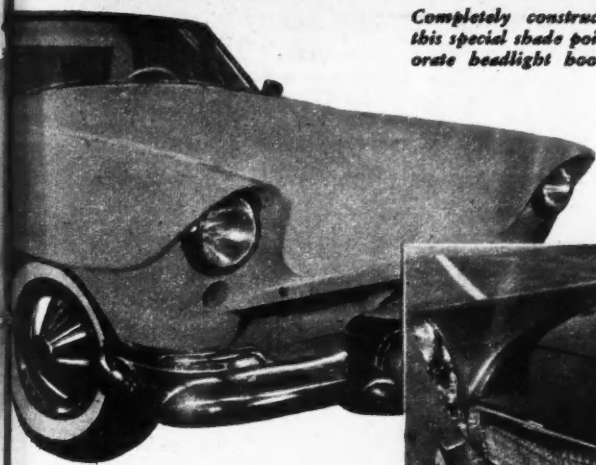
*Deeply shaded motif is easily constructed from sheet metal utilizing small diameter round rod for leading edge as shown here.*

**YES, SHADES ARE THE** thing with most customizers these days. The simply treated "frenched" headlight rim has become a thing of the past — and with good reason, too! The new "lipped headlight" allows the customizer to incorporate unlimited design into the front of his car. Expanded metal patterns can be utilized. And deep tunneling effects can be achieved. It's a fad that offers a million and one ideas for accomplishing an original new development.



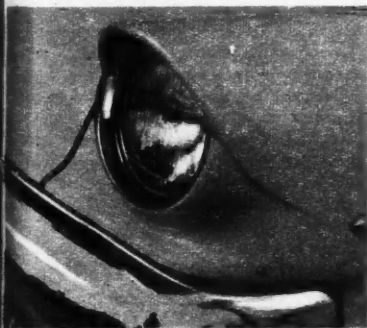
*'55 Cadillac rims were employed to achieve this styling. Notice that an additional lip of round rod slightly overhangs rim.*

*Completely constructed from fiberglass, this special shade points up just how elaborate headlight boods can be designed.*



*Dual headlight combos are rapidly becoming popular. Here, T-Bird is treated with a La Plymouth design with special insert.*

pearance. The following examples are a few of the "firsts" we have encountered in our travels, and by no means symbolize the end result. In the near future we can expect to see many more wild creations of dual headlight shades, radical front fender extensions and elaborately "lipped" headlight brows, all of which goes to show that for every timely styling idea that becomes a fad, there's another one to take its place that needs only to be developed.



*A nice effect is created merely by frenching in stock rim, then adding special sheet metal "eyebrow" along top of fender.*



*Peaked headlight shades also are popular with customizers. Here, shade has been pleasantly blended to forward body panels.*

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## WHAT'S YOUR PROBLEM?



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**TECHNICAL EDITOR**

### ZEPHYR GEAR PROBLEMS

Dear Ray:

I would like to know if there is an adaptor  
for four-barrel carburetors to fit the manifold  
on my '46 Ford V8? I have installed Lincoln  
transmission gears with the stock engine and  
since then, the car will not take off from a dead  
stop properly. Could you tell me what is  
wrong.

— Larry Jackson  
Xenia, Ohio

You can locate an adaptor to fit the four-barrel  
carburetor to your present manifold at almost  
any speed shop. I doubt if you will notice a big  
difference in performance since your engine is  
stock otherwise, but it should help some. By  
installing the Zephyr gears in your transmission,  
you have changed both low and second gear  
ratios to a ratio which requires fewer engine  
rpm's for the same car speed. This means that  
at low car speeds, the engine rpm's are low and  
are below the power range of the engine. Zephyr  
gears are used in abundance in drag  
cars since a low rear end ratio and the high low-  
second transmission ratios give good accelera-  
tion through all gears. In a stock car such as  
yours (especially if you have oversize tires on  
the rear wheels,) the Zephyr gears might be  
too much.

### STEERING PROBLEMS

Dear Ray:

I own a '32 Ford coupe with a '47 Merc 34  
mill. The steering is a worn out '41 Ford col-  
umn shift and is hooked to a '41 Ford trans-  
mission. I would like to know if a late model  
steering column, including gear box could fit

in my car. The biggest problem would probably be the exhaust headers getting in the way. I'd like to get a column which would make both steering and shifting smooth and more dependable.

I'd also like to know if high speed gears of a ratio of 3:54:1 can be obtained for '32 through '36 rear ends? Where and how much can I get them for?

— Max Wright  
Dixon, Calif.

Ford cars up to 1948 use a Gemmer #2 type steering box where the sector shaft that actuates the pitman arm is horizontal to the ground and goes through the frame rail. 1949 and later Fords use the #3 Gemmer steering with a sector shaft nearly vertical to the ground. This means that a '48 steering is the latest you can use with your car where a drag link is used between pitman arm and steering arm on the spindle. Since the '41 and '48 are the same, why not rebuild your present steering and rehash the shifting linkage. For special ratio gears, write: A. J. Getz, 4430 Carrollton Ave., Indianapolis 5, Ind.

#### CAM SWITCH

Dear Sir:

I read your article on camshaft installation in the March '56 issue and would like to know if the Olds '55 camshaft would fit my 1953 Super Olds 88? I would also like to know if there would be any additional work putting it in a 1953 Olds.

The '53 Olds that I am writing about already has a '55 Olds carburetor attached to a '55 Cadillac base plate so that it would fit the original manifold. The '55 Olds carburetor works excellent on the '53. Not only did I get increased gas mileage from the '55 Olds carburetor but also faster acceleration.

— G. L. Daniel  
Tuskegee, Ala.

The '55 stock cam will work in all '52-'55 Olds engines as is and all '49-'51 engines if the '52 and later (1.8 to 1 ratio) rocker arms and rocker arm stands are used. The carburetor switch you've pulled is just the opposite of the one we pulled in the August '55 issue of CAR CRAFT Magazine where an Olds throttle body and a Cad float bowl assembly was used. The '55 Olds bowl will give larger venturi area than the '53 Olds but a '55 or '56 Cad Rochester carburetor with more venturi area has a belt pattern that matches the '52-'53 Olds manifold and can be bolted right on.

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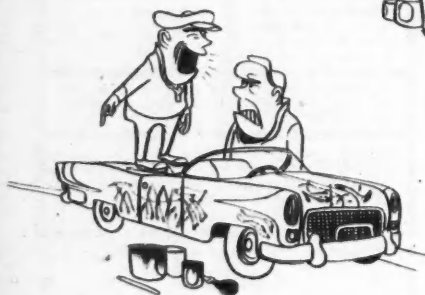
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# CUSTOM QUERIES

**George  
Barris**  
BARRIS CUSTOM SHOP

## BUMPER IDEAS FOR '49-'50 FORD

Dear George:

I own a '50 Ford that is under the customizer's torch and I would like to know what bumper installation you might suggest for this particular model, both front and rear? Would there be considerable modifications to the bumper brackets?

— Nelson Smith  
Baltimore, Md.

Most custom enthusiasts employ '51 Ford bumpers and bumper brackets for the '50 Ford, Nelson. They look very good, and the installation is an easy one.

## '55 FORD GRILLE QUERY

Dear George:

I am in the process of customizing my '55 Ford Victoria and was wondering which of two grille ideas you would recommend? I'm contemplating utilizing either a '55 Plymouth grille bar or a '55 DeSoto assembly. I like both styles, but thought you might be able to tell me which would be the easiest of the two to install, and about the work involved.

— George Oki  
Honolulu, Hawaii

I suggest you take advantage of the Plymouth assembly, George. It will be the easiest to install of the two, and I think the Plymouth bar will make for a more custom appearance. Since the '55 Ford grille cavity is long and narrow, you should have no trouble in removing the complete Ford grille component and replacing it with the Plymouth assembly.

## LOWERING THE '51 PLYMOUTH

Dear George:

In the September issue you spoke of lower-

ing the front end of a '55 Ford. I would like to know what method you suggest for dropping the front of a '51 Plymouth? "Custom Queries" are great, keep them coming.

— Mike Lopez  
Gallup, New Mexico

I know of no lowering kits made for this particular year Plymouth, Mike. Suggest that you write to Valley Custom Shop, 1871 Victory Place, Burbank, California, or Stylers' Body Shop, 1725 National Ave., National City, California, for possible kit information. The only other method that can be employed is to cut one ring from the coil springs or, take the coil springs to a spring shop and have them slightly compressed.

## ELEVATED BUICK

Dear George:

I own a '40 Buick in "mint" condition. However, it is so high that your ears pop getting in and out of the car. What I would like to know is what is the best method to employ when lowering it front and rear. As you know, coil springs make up the suspension system, so blocks are out. I want a considerable drop—say, about four inches both fore and aft. What do you suggest?

— Jon McKibben  
Deland, Florida

Valley Custom Shop makes up special lowering kits for coil suspension systems. Suggest that you write to them directly for the information, price, etc. Their address is: Valley Custom Shop, 1871 Victory Place, Burbank, California.

## WITHOUT ANY ALTERATIONS

Dear George:

My friends and I would like to know, is it possible to adapt the grille and taillights of a '54 Chevrolet onto a '53 Chevrolet product without major alterations? Keep up the good work on the mag—we really enjoy your issue.

— Dick Kreitz  
Oakland, California

Yes, this can be done without any major alteration, Dick. Requirements are to relocate attachment holes for both taillights and grille. You'll probably have to rework the rear grille flanges of the '54 unit slightly to make it fit the '53 opening.

## PONTIAC BLINKER IN '55 CHEV

Dear George:

I am planning on installing '56 Pontiac taillights in my '55 Chevrolet. Can you tell



like what work would be necessary to accomplish this modification? I would appreciate any information that you can suggest.

— *Kurt Burtch*  
Midland, Michigan

You make no mention of what type '56 Pontiac taillights you plan to install in your '55 Chevy, Kurt. If you're speaking of the '56 Pontiac Station Wagon taillight, then you're home free. I have not performed this particular component swap, but I'm sure that the taillights from the '56 Pontiac Station Wagon would fit perfectly with the modifications involved. You might have to change the attaching-bolt holes slightly but that would be the only requirement, as I can see it.

#### SPECIAL PAINT MIXTURES

Dear George:

I am interested in obtaining some of the special-mixed paint that was used on Sal Manno's '54 Buick custom featured on the cover of Motor Life Magazine, September '56. You and Gaylord did all the work on the car, so I presume that you can furnish me with the information. I own a '52 Nash Rambler that I wish to paint with the same blue color. Can you tell me where to procure the paint and how much I will need to do the job?

— *Les. Charles Hair*  
Wichita, Kansas

You can purchase the paint from us, Chuck. We specialize in custom colors. The paint sells for approximately \$19.00 a gallon. One and a half gallons should get the job done in your case. Write Barris Custom Shop, 11054 Atlantic Blvd., Hollywood, Calif.

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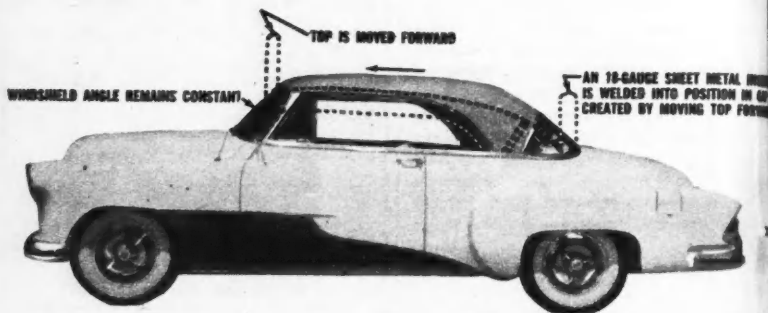


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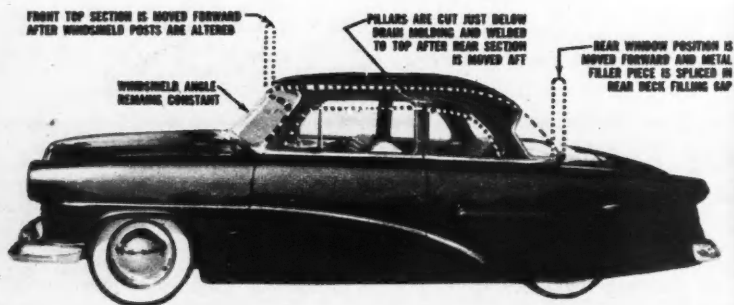
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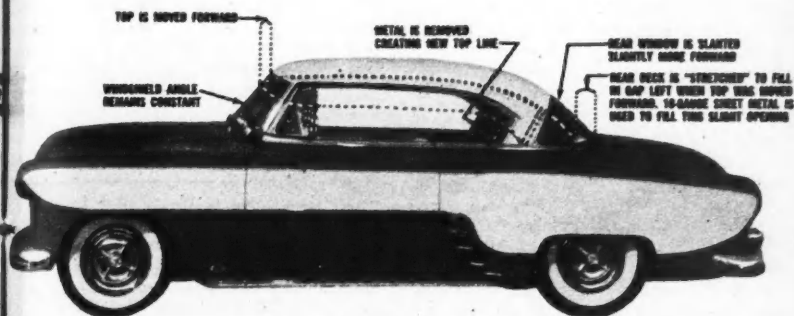
## TOP CHOPPING continued from page 23



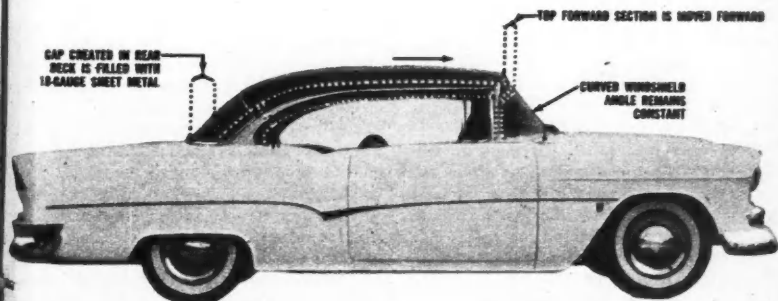
Heavy lines drawn on photograph of this customized '49-'52 Chevrolet hardtop gives you a good idea how a chopped top on this car will appear. To retain original slant of two-piece curved windshield glass, top is moved forward to meet trimmed windshield posts. With back section moved forward, gap is created in rear deck which is filled with an 18-gauge sheet metal insert welded in position. A glass shop is called in to do all glass work, and replace rear Herculite glass with plexiglass section.



Slightly different problems present themselves when a late-model tudor's top is chopped such as this '52-'54 Ford. In this case, cuts are made at the top of the windshield posts at the bottom of rear top panels, and at the door pillars, just below drain molding to free the top. Then, amount of chop desired is made in windshield posts, pillars and rear bottom section. With top moved forward, it is welded in place to windshield posts, door pillars, and the rear body panels. An 18-gauge metal strip is added to the rear deck filling the gap created when the rear window was moved forward to its new position. Careful measurements should be taken all around as job progresses to insure symmetrical sides and a good alignment of all modified components.



Chopping the top on this rather radically customized Chevrolet hardtop will further individuality of this car. Here, top is given new appearance with a section removed from the rear top quarter panel to form a V at the body line. With the top moved forward so that the windshield angle remains constant after the posts are trimmed, a gap is created at the rear window where it meets the body. This is filled with an 18-gauge metal insert to give the rear deck a longer appearance. Windwings and side glass frames must be cut down to fit after the top has been lowered to its position.



This customized 1955 Chevrolet hardtop presents similar problems as earlier model hardtops when chopping the top, except that you'll notice windshield and window posts are at right angles to the body. This simplifies windowing but does not eliminate necessity to move top forward when windshield posts are cut down; thus, an 18-gauge piece of sheet metal is required again to fill gap left in rear deck. All stainless steel trim is removed prior to cutting of structural members, and the trim moldings are trimmed at the ends to avoid unsightly joints and necessity for additional trim clips.

## VALVE JOB

continued from page 13

scraping or brushing the carbon out of the intake and exhaust ports and passages. The bore of the valve guides can be cleaned with a small brush of the type used to clean rifle and pistol barrels.

Measure the bore of the valve guides to determine how badly they are worn. Worn guides cannot hold valves in alignment with their seats but this is perhaps of secondary importance when the quantities of air and oil that can be forced through the guides and into the cylinders during intake strokes are considered. Air inducted in this manner can upset the fuel-air mixtures in the cylinders and affect the engine's performance, whereas oil inducted will increase the engine's rate of oil consumption and cause excessive carbon deposits to collect on the underside of valve heads and in the combustion chambers.

Guides can be checked for wear by measuring their inner diameter at several points with a small-hole gauge or by using seat grinder pilots of the solid type as gauges. Grinder pilots are much the quicker and easier of the two tools for checking guides because pilots of various sizes need merely be inserted in the guides to find the largest they will take. The amount a guide is oversize can be determined by comparing its diameter as measured with the small-hole gauge, or the size of the largest pilot it will accept, with the guide's specified diameter. Guides worn more than .002 of an inch should be replaced.

Some of the very latest automobile engines have integral valve guides that are part of the cylinder head casting but the majority still have removable guides that can be driven out of the heads or cylinder block when replacement is necessary. Heads with integral guides are reconditioned by reaming the guides to a standard oversize and installing new valves that have oversize stems.

All one needs to install guides of the replaceable type are a driver of the correct size and a hammer. To remove worn guides, place the head on a solid surface and drive the guides into the valve ports and out of the head. Measure the height of the guides above the top surface of the cylinder head before removing them because the new guides must be installed to this same depth. Lubricate the new guides with white lead and drive them into the head from its top surface.

As a rule new guides must be reamed with a special reamer after they have been driven into place. This is done to remove any burrs that might have been created at their end by the driving or to open them up to size to correct for any undersize condition resulting from compression of the guides by the bores into which they were driven.

The days of doing a valve job by lapping worn valve faces to their seats with grinding compound are long gone. Now, the seats and faces must be ground with precision grinders to restore them to their original condition. If new guides are to be installed as part of the valve job, this must be done before the seats are ground. The reason for this is that the center of the bore in the new guides may not be in exactly the same position it was in the worn guides; therefore, seats ground around worn guides may not be absolutely concentric with new guides.

There are many types of valve seat grinders in use today and most of them do a satisfactory job if they are operated by a competent mechanic. The finished seats must be round and of uniform width throughout their circumference. Widths of the seats will vary according to the type of engine but the trend in modern engines is toward much narrower seats for both intake and exhaust valves than were used in the less powerful powerplants of not too long ago.

Valve faces must be ground to the same angle as the seats. The faces are ground in machines made for this specific purpose. Any valves that have worn or bent stems or burnt or cracked heads must be replaced with valves in usable condition. Also, valves with narrow margins or sharp edges between the top edge of their face and the top of their head must be replaced.

The end of the valve stems, especially those of valves actuated by rocker arms, should be ground in a tip grinding fixture of a valve refacing machine to provide a smooth contact surface for the valve lifter or rocker arm. Stem ends with pits or grooves in their surfaces make it difficult to adjust the clearances between the valves and their actuating member.

Valve lifters and rocker arms with pitted valve stem contact surfaces must also be ground in suitable fixtures for the same reason that valve stem tips are ground. When grinding rocker arm tips care must be taken to grind the correct radius on the arms so they will contact the stems at their original angle.

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Check each valve spring for straightness and tension. For the straightness check stand each of the springs on a flat surface next to the vertical blade of a tri-square. Replace any springs that don't stand reasonably straight. Measure the tension of the springs on a good spring tester and discard any that don't test to the specified tension. Adequate valve spring tension is absolutely necessary to good engine performance.

After the seats have been ground, the valves refaced, and the springs tested, the valves can be installed in the head. Oil the guides and the stems of the valves with engine oil and insert the valves in the guides. Slip a spring over the stem of one of the valves, place a seat washer in the spring, and compress the spring with a spring compressor. Place a pair of locks in the groove in the valve stem and release the spring. Install the rest of the springs in the same manner. In most overhead valve engines some sort of oil seal is required on the stems of the intake valves. The purpose of these seals is to reduce the amount of oil that can flow down the stems and into the combustion chambers. Installation procedures for the seals vary, some being slipped over the stems before the spring and others after the spring has been compressed.

Measure the "installed length" of the valve springs after they have been installed on the valves. This is done by measuring the length of each spring, when the valves are resting on their seats, with a rule. Measure only the springs—do not include the seat washer in the spring length. Springs that measure longer than their specified length must be shortened by placing washers of the necessary thickness between their stationary end and the head. Special washers for this purpose are now available from many auto parts stores. Establishing the specified installed spring length is important because the tension a valve spring exerts on its valve is dependent on the spring's length.

Scrape the piston heads and the gasket surface of the cylinder block to remove all carbon and traces of gasket and gasket sealer, being careful not to allow any of the scrapings to fall into the valve chamber. Blast the pistons and block with compressed air and blow any oil or other matter out of the capscrew holes in the block. Coat both sides of a head gasket with Aviation Permatex or equivalent and place the gasket on the block. Some head

CONTINUED next page

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gaskets have a particular side that must be up, or an end that must be at the front of the block, so be careful to install the gasket correctly.

Place the cylinder head on the gasket and coat the threads of the head capscrews with Aviation Permatex or equivalent and start them in their threads. Install the pushrods by seating them in the lifters and install the rocker arm assemblies — this particular part of the head installation may vary with different types of engines but there shouldn't be any difficulty in determining the proper installation procedure.

Run the head retaining capscrews down against the head and then torque them to the specified torque, following the tightening pattern recommended by the manufacturer of the engine. Tighten the capscrews gradually and evenly, in steps of 15 to 20 foot-pounds, until the maximum torque is reached.

If the engine has hydraulic valve lifters it won't be necessary to make any valve lash adjustments — an exception to this rule is the Lincoln. If the engine has adjustable lifters or rocker arms, adjust the valve lash to somewhere near factory clearances. This preliminary adjustment can be made quickly because it needn't be too accurate. Just be sure the valves have more than the minimum clearance.

Install the exhaust manifolds, intake manifold assembly, spark plugs, and the generator and its belt. Connect the generator wires, polarize the generator, fill the radiator, and start the engine. Intake manifold nuts and bolts should be tightened alternately and evenly. Polarize the generator by momentarily connecting the armature terminal of the voltage regulator to the regulator's battery terminal with a jumper wire.

Start the engine and let it run long enough for it to reach its normal operating temperature and then retorque the cylinder head capscrews and readjust the valve lash. This time adjust the valve clearances as accurately as possible. If the engine is one of those that requires valve adjustment while cold, allow it to cool before making the adjustments. Correct valve lash is one of the most important factors affecting valve life.

After first starting the engine squirt oil on the valve stems and rocker arms so they won't run dry while the overhead valve portion of the engine's lubrication system is refilling itself and returning to normal operation. When oil is flowing freely from the rocker arm

shafts, bolt the rocker arm covers temporarily in place to help retain the engine heat around the valve assemblies while the engine is warming up.

That's all there is to it. The valve job is finished, with the exception of retorquing the cylinder head capscrews after five or six hundred miles of driving and then readjusting the valve lash. As a rule asbestos-type gaskets demand more head retorquing attention than the more modern single-layer steel gaskets. But regardless of the type of gasket your engine uses, it will be wise to retorque the heads at least once in the first thousand miles after the valve job. Don't forget, though to check the valve clearance of overhead valve engines equipped with solid lifters after tightening the heads.

#### STATEMENT OF OWNERSHIP

STATEMENT REQUIRED BY THE ACT OF AUGUST 24, 1912, AS AMENDED BY THE ACTS OF MARCH 3, 1933, AND JULY 2, 1946 (Title 39, United States Code, Section 233) SHOWING THE OWNERSHIP, MANAGEMENT, AND CIRCULATION OF CAR CRAFT MAGAZINE, published monthly at Los Angeles, California, for October 1, 1956.

1. The names and addresses of the publisher, editor, and business managers are:

Publisher: Robert E. Petersen, 5959 Hollywood Blvd., Los Angeles 28, Calif.

Editor: Dick Day, 5959 Hollywood Blvd., Los Angeles 28, Calif.

Business manager: T. A. Johnson, 5959 Hollywood Blvd., Los Angeles 28, Calif.

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5. The average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the 12 months preceding the date shown above was: (This information is required from daily, weekly, semi-weekly, and tri-weekly newspapers only.)

T. A. JOHNSON,  
Business Manager

Sworn to and subscribed before me this 18th day of September, 1956.

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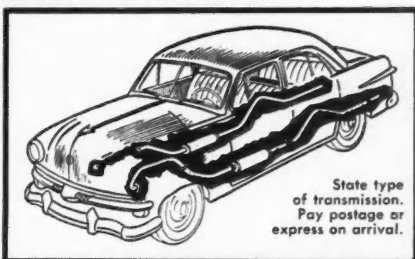
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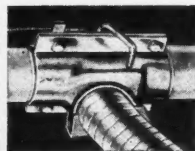


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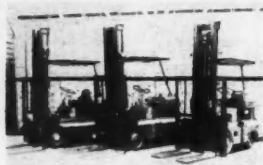
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